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THE PAPER TRADE JOURNAL.

"The Consumption of Paper is the Measure of a People's Culture."

VOLUME XXIII.—NO. 37. NEW YORK, SEPTEMBER 15, 1894. WHOLE NUMBER 1063.

Trade Topics.

Blue Paper Printing—V.

[WRITTEN FOR THE PAPER TRADE JOURNAL.]

By James F. Hobart.

There is a method of copying drawings on thick paper, and even on cardboard, which deserves to be better known among draftsmen. It consists of using a kind of sensitive paper known as "gelatine" or "bromide" sensitive paper, which is covered with a sensitizing compound made chiefly from the bromide of silver put on in a layer of gelatine, almost the same as the coating is put on a dry plate used for taking negatives for the purpose of making photographs.

An exact, non-reversed copy can be made by taking a large printing frame, putting in a pane of glass and then the drawing is put in, face side away from the glass, and lastly the sensitive paper is put in with the coated side away from the drawing. This position is necessary in order to get a copy which is not reversed, consequently the sensitive paper used should be the thinnest that can be procured. It is sold in three kinds: "A," "B" and "C." The "A" is the kind best suited for this purpose, as it is the thinnest and is very smooth.

After all is ready as described above, the printing frame should be closed and exposed either to the sun, to diffused light or by the light of a common kerosene lamp. With direct sunlight, unless the drawing is on very thick cardboard, the exposure should be hardly more than a fraction of a second. With diffused light and an ordinary ink drawing on drawing paper, the exposure need not be more than three or four seconds. With lamplight an exposure of ten to twenty minutes may be necessary, but probably one-half of this time will be sufficient. With large drawings it is best to expose small test pieces, at least until some idea of the relative lengths of time required for the operation has been acquired. The small test pieces can be developed and the required time calculated from them pretty closely.

The developing is the worst part of handling this kind of paper. The first requisite is that the fingers shall be kept off the paper, wholly and entirely. Everywhere that the paper is touched on its face side there will be a spot on the finished work. If the hands are perfectly clean and free from perspiration they will not soil—but where can hands be found as clean as that?

After printing as many copies as needed, taking great care to keep the paper away from every vestige of white light (a dark room is an absolute necessity with this kind of paper), soak in clear water for a few minutes, or just long enough to soften the paper, then while the paper is soaking make ready the developer by mixing together two solutions which must be prepared in advance—say, the day before. The solutions are:

(a) Oxalate of potash.
Water to make saturated solution.
(b) Sulphate of iron.
Water to make saturated solution.

Take of (a) eight parts, of (b) one part, and add about an equal part of water; then, if the lines do not develop dark enough, some more solution in the same ratio may be added. Never put more than one part iron to seven parts of the oxalate, or there will form a dirty deposit which will adhere to the surface of the paper and spoil it. In mixing the two solutions, never pour the oxalate into the iron, as when the first few drops touch there will be an excess of iron in a little oxalate, and that will cause the deposit alluded to. If the iron is poured into the oxalate there will be no trouble, as the latter quantity will always be in excess.

After soaking the paper, as mentioned, place it in the developer and keep it constantly in motion by rocking the dish back and forth. This is necessary to prevent any part of the paper from becoming developed while some other part remains undeveloped. Watch closely as the lines begin to appear, and if they flash quickly into view it is an indication that the developer is too strong. In that case pour in some water to weaken it. If the dark ground does not come up in a few minutes the developer is probably too weak and needs to be strengthened by a little undiluted solution.

When the ground has become sufficiently dark, leaving the lines white, the developer should be turned off or the prints removed to another dish and well washed with plenty of clear water. Then they should go to the "fixing solution," which is the same as for the silver prints already described, viz:

Soda hyposulphite..... 1 ounce.
Water..... 1 quart.

After the prints have been in this bath for ten minutes they may be examined, and if not yellow or otherwise stained they are ready for the final washing and soaking, which should be continued for an hour at least, or until it is certain that all traces of the "hypo" have been removed. If, however, there is any yellow tinge or stain visible, place the prints in a dish containing water made slightly sour with sulphuric acid. In a few minutes the yellow stain will have disappeared and the final washing may be proceeded with.

As before stated, the great point with this method is to keep things clean. No dirt will be tolerated by the paper without resulting in some ugly stains. Again, the dishes must be perfectly clean. Other chemicals will not work well with the developer used with the gelatine paper, and if even a trace of the pyrogallic acid commonly used for developing gets in with the iron and oxalate developer, then will the paper developed in the mixture be filled with black spots which look like ink, and ink they are, for the iron of the one solution combines with the gallic acid of the other, and true ink, and black ink at that, is the immediate result.

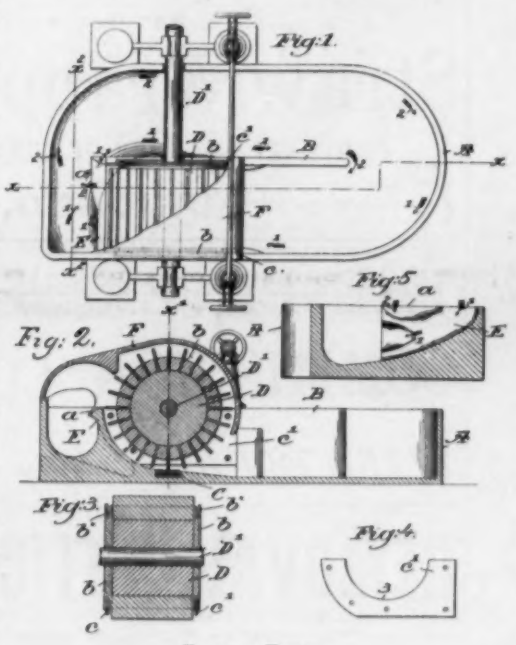
The print made as above described, and called a "bromide print" by photographers, is harder to make than the silver print, and is no better, except when a large number have to be made in a limited time, as the time of exposure being very short admits of making a large number of copies quickly. This point is also of value when thick paper or cardboard has to be printed from. For making negatives for blue positive printing the drawing and the sensitive paper should be put face to face, in order that a reversed copy, or a "negative," may be made.

Beating Engine.

The improvement presented in the illustration on this page consists in modifying the back fall of the beating engine by reducing its length, thus making it more abrupt, and cutting away or omitting the mid feather beyond the back fall, and so shaping the rear of the back fall by undercutting it or removing a portion of it at its end in the line of the mid feather, and between the bottom of the tank and the top of the back fall, as to enable the stock running over the back fall nearest the inner wall of the tank to take a quick, sharp turn from the tank wall toward the line of the mid feather and at the foot of the back fall, it turning sharply about the back fall in the line of the mid feather and getting under the pulp, then being discharged over the back fall near the line of the mid feather.

For this purpose the top of the back fall, beginning at or near the mid feather is provided with an apron which is extended across and projects beyond the back fall for about half, more or less, of its width, and the bottom of the tank is elevated or inclined upwardly at the rear of the back fall, from at or about the line of the mid-feather to the side wall of the tank, the bottom being concaved and cutting under the rear side of the back fall from near the side wall of the tank to the junction of the mid feather and back fall, and so lowering the bottom of the tank near the junction of the back fall and mid feather as to form a passage way along which the pulp may travel quickly and easily. In other words the back fall is provided with a lip or apron of such shape, taken in connection with the cut under rear side of the back fall and the raceway bottom that the body or sheet of liquid stock will be given a twist or will be overturned as it passes over the back fall.

Figure 1 is a top view of a beating engine embodying this invention, with the cylinder cover partially broken away. Fig. 2 is a vertical sectional view in the line x, Fig. 1. Fig. 3 is a transverse sectional view taken in the line x', Fig. 2, parts beyond the roll being omitted. Fig. 4 is a detached view of one of the plates to be connected to the mid feather and side wall; and Fig. 5 is a sectional detail taken on the line x^{12}, Fig. 1.



Beating Engine.

The tank A, the bed plate C, the roll or beater D and cover F are and may be all as usual. Most of the back fall E is cut away in the direction of the length of the tank, and its rear side is more abrupt, as shown in Fig. 3, and the mid feather B is shortened so that its end no longer extends beyond the back fall. The back fall is cut under its rear side below its top and between the side wall and the mid feather, so as to present a lip or apron, a, it being extended from at or near the line of the mid-feather toward the side of the tank along the top of and for about half the length of the back fall, more or less. The shape of the bottom of the tank at the rear of the back fall is changed so that the tank bottom is made concave, and is contracted, and the bottom is also concave in the dotted line x^6, Fig. 1, being lowest near the junction of the mid feather and the back fall, so that the pulp coming along at the side of the tank, as designated by arrows 1, and discharged over that part of the back fall where there is no lip or apron, will, by reason of the curvature of the bottom of the tank at the rear of the back fall and the under cutting of the back fall, turn sharply about the junction of the back fall and mid feather and follow along the side of the latter.

The pulp discharged over the part of the back fall having the apron will be made to cross over the top of the pulp designated by arrows 1, discharged over the unaproned part of the back fall, and will follow along the inner side of the wall of the tank, as designated by arrows 2.

From the foregoing it will be understood that the liquid discharged over the inner end of the back fall will be returned to the back fall in position to be passed over the outer end or portion of the back fall, and vice versa, and in this way the liquid is overturned or made to change from the outer to inner side of the raceway, thus thoroughly mixing the liquid and its contents and subjecting all parts of the stock to equal beating.

Sometimes with usual beaters the stock becomes jammed in between the end of the beater and the wall of the tank, or the end of the beater and the mid board. To overcome this the beater is provided at its ends with an annular projection, preferably in the form of a metallic ring, b (Figs. 1 and 3), having a groove, b^8, into which is entered the concave edges 3, of metallic plates $c\ c'$, attached to the side wall of the tank and to the mid feather respectively, and also to the inner sides of the cover, one of the plates being shown detached in Fig. 4. The side walls of the tank and the mid feather are each notched as is the cover, to receive the annular projections b.

Shafting—I.

[WRITTEN FOR THE JOURNAL.]

By Sanford E. Thompson.

In designing a line of shafting it is a not only necessary to choose an economical size and speed, but also to pay careful attention to the proper location and style of the bearings, couplings and collars. The size of the shaft should be determined from the amount of horse power to be transmitted, the number of revolutions per minute, and the size and location of the pulleys upon it. A shaft is subjected to a combined twisting and bending strain. The twisting is due to the power transmitted—that is, carried along in the shaft to be taken off through pulleys located still farther from the engine or other motor; the bending is caused by the weight of the shaft itself, the weight of the pulleys and couplings upon it, and the pull of the belts or ropes. The twisting produces a shearing stress on the shaft, and the bending tends to deflect the shaft and to break it in the same way that a beam is broken by an excessive load.

In the various works on mechanics may be found formulas covering both the twisting and the bending, and designed to be used in figuring the sizes of shafting. These, however, owing partly to their disagreements and in part to the complicated forms in which they are given, are seldom used in practice. As will be described at length farther on, the customary method is to use a simple formula which considers the twisting alone, but in which the bending is allowed for by using a large factor of safety, and then varying the diameter for special cases, according to the judgment of the engineer. Before considering these formulas and the method of applying them we will note some of the principal points to be observed in designing shafting which cannot be covered by any formulas or rules. Most of the papers on the subject of shafting go carefully into the details of the rules to be observed in calculating the strength, but omit entirely what is really as important a part of the subject. For a single shut-down caused by a break from overloading a shaft, or, on the other hand, for a waste of $100 from using a shaft larger than necessary, there are a great many shut-downs, and thousands of dollars are thrown away on account of lack of attention to the minor details. One reason for this is that the draughtsman or designer is too often a man who has never had practical experience in running machinery and who bases his work more upon theory than upon practice.

The only way to lay out a line of shafting with a certainty that it will run after it is put up is to consider thoughtfully what may happen under extreme conditions. It should be so constructed as to suggest the least possibility of accident, and also in such a manner that if an accident should occur it would cause a minimum amount of damage. It is always safer to err in getting a thing too strong than not strong enough; yet, on the other hand, economy in the first cost must be considered and the extra strength or stiffness must be put where it will be effective. It is good practice in a line of shafting to make the head shaft large; then, if no pulleys are on the lengths next to this, to make these lengths of considerably smaller diameter—of a size in fact, which will merely transmit the power with scarcely any allowance for bending. When the sections from which the power is to be taken are reached the diameter may be increased again to the size required, to provide for the pull of the belts and the weights of the pulleys, in addition to the simple transmission of the power. Where power is required the entire length of the shaft, the diameters should be made smaller and smaller, as the distance from the main driver increases. Even here, however, if a very heavy pulley is required anywhere along the line, the diameter should be increased at this particular point. Where this is necessary it is often the cheapest way to use bearings of the smaller bore and to turn down the enlarged shaft to this size, except from bearing to bearing, between which the heavy pulley is located. Sometimes a special forging, with the span upon which the pulley rests enlarged, is the proper thing to use. If it is impracticable to enlarge the shaft, or if a large pulley is to be put on a comparatively small shaft already in place, bearings may be located at each side of the new pulley and close to it. In any case a bearing should always be placed on at least one side of a large pulley.

In a line of shafting it is a good plan to make all of the pieces, or as many pieces as possible, of the same length. When this is done the pieces will be interchangeable, and if the location of a machine is altered and the pulley has to be moved, the easiest way will often be to change shaft and all. This is sometimes impossible when flange couplings are used, for the coupling bolts may not fit. Another advantage in making the pieces of the same length is on account of the ease in replacing them. It is well to keep on hand a few spare lengths of shaft, and where most of the pieces in use of uniform diameter are also of the same length it will be necessary in the largest mill to keep in stock only one or two lengths of each diameter. If an alteration in the mill has been decided upon which necessitates the change of an important pulley, a great deal of time will often be saved by preparing one of the new pieces of shaft to put in place of the old, and cutting a keyway in it suited for the new location of the pulley. Then, when the mill is shut down, no time need be lost in sending the old shaft to the machine shop to be refitted. The old shaft is just as good for work as the new one, and if they were both originally of the same length there has been no waste of material.

The end of a shaft should always be exactly flush with the end of a bearing, or, better still, should project a little beyond it. It is a very peculiar fact, and one which I have never seen stated in print, that where a shaft terminates in a bearing, that is, does not run quite through it, the latter is liable to heat. I had been told by old mill men that this was true, but never really believed it until after seeing a number of practical and rather expensive illustrations. Of course this will not invariably happen, but for important bearings or where the work is heavy there is almost sure to be trouble with a bearing where the shaft does not run to its end. I know of no explanation for this and I shall not attempt to give any. Of course if the shaft stopped at or near the middle of the box, one would naturally suppose that the bearing surface was too small, and hence that the pressure upon the lining of the box was excessive; but as the trouble is liable to occur when the shaft

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comes within one-eighth or one-quarter of an inch of the end of the box, this explanation is not satisfactory. It is possible that the slight end motion, which a shaft often has, may be in a measure responsible for it.

If there is any possibility of a line of shafting being extended beyond its original length, the end piece should project through the last bearing a sufficient distance to admit of a coupling being placed upon it when needed. The additional cost will be slight and will often avoid the expense of a new length of shaft on changing the location of the bearing. A key way for the coupling may also be cut in it before it is erected, although if this is done, care must be exercised when ordering the new coupling that its key fits the slot in the shaft. Every line of shafting requires at least one pair of collars or their equivalent. These should, if possible, be located on the head shaft; in any case, they should not be far from the main driven pulley. Sometimes fast collars shrunk onto and finished with the shaft are to be preferred. If a special shaft is to be ordered, and if the bearings are exactly located and are furnished by the same manufacturer, there should be no difficulty in obtaining perfect accuracy. The fast collar has no dangerous set screws and is always reliable. For ordinary work, however, a loose collar, if rightly made and carefully put on, will give satisfaction. Sometimes the hub of a pulley may be made to take the place of a collar, but if this is done, the pulley should in most cases be made with a special hub projecting beyond the rim, so that no oil from the end of the bearing can drip into the pulley. The end of the hub next to the bearing should also be faced to give a smooth surface.

The collars should be located on each end of a bearing which has a very substantial support. A wall box is usually the best place for them. It is not good practice to place the two collars against different boxes. We often see this, especially on counter shafts which have been erected by millwrights connected with the mill, but there is always a greater chance for end motion. If it can be avoided, more than one set of collars should never be placed upon a line of shafting, as the expansion and contraction of the shaft from changes in temperature may alter the length of the line sufficiently to give trouble. With a long line, especially where cone vice couplings are used, two, and sometimes even three pairs are necessary. If the boxes next to any of these become heated, one of the collars should be loosened to ascertain whether this is the cause of the trouble.

The best style of loose collar that I have used is made with a square headed steel set screw counter sunk into the collar so that when screwed down its end hardly projects from the surface. If the heads of the set screws are slotted for a screw driver it is difficult to set them up firmly, and if an ordinary projecting set screw is used there is great danger of injury to the workman. The square counter sunk head, however, may be easily worked with a socket wrench or with a small monkey wrench and can be screwed up tight. At least one of the prominent shafting manufacturers carries a line of collar protectors which fasten on to the hanger box and encircle the collar. This is an absolute protection from accident to the men and also prevents oil being thrown off by the collar. If a pair of split collars to fit each size of shaft in the mill are kept in the stock they can often be temporarily utilized to advantage in case a coupling starts apart or a shaft works on end from some other cause.

(To be continued.)

Correspondence.

MIAMI VALLEY.

[FROM OUR REGULAR CORRESPONDENT.]

DAYTON, Ohio, September 12, 1894.

The fanciful peculiarities of business conditions were apparent this week. During the preceding ten days, constituting those following the passage of the tariff bill, commercial enlivenment was in evidence throughout and many mills resumed with strong hopes of continuing. During the past week, however, a marked dullness has existed, and while the mills are yet in operation it may be due mainly to the efforts of the managers to encourage the restoration of confidence and continue at all hazards. The excessively hot weather prevalent in this latitude and in contiguous States showed its effect in all lines of trades, and the paper making industry was not among the least disturbed.

Politically there is a stir of some magnitude in paper trade circles. The Miami Valley was always considered the political Mecca of Ohio and receives more than its quota of national attention during the progress of political fights. Many will recall the prominence bestowed upon the congressional contest of the historic Third District last spring, in which Paul J. Sorg led all opponents in the nominating convention and won the goal at election time with a handsome majority against a formidable barrier. Just at that time Mr. Sorg and a few other capitalists purchased the Middletown Paper Company's plant, then in the hands of a receiver, and transformed it into the Jacoby Paper Company. Of course paper mill men generally, irrespective of party affiliations, loaned their influence because they appreciated the worth of their fellow citizen.

Mr. Sorg will again be a candidate. As yet it is not known who may become his opponent. Among those suggested is William P. Callahan, another millionaire of this city, who controls the interests of a vast machine manufactory, and is also the sole owner of the Lewis Paper Mill. It is scarcely probable that Mr. Callahan seeks congressional honors. Among the men also well known in trade circles mentioned as available candidates and a very strong one at that, is Captain E. Morgan Wood, of the Dayton Globe Iron Works. The captain is a careful, conservative gentleman with business acumen and a trifle more than a bulk of good, common sense.

Some time ago the gamblers of Dayton preferred charges against Chief of Police Farrell, alleging his participation as referee in a so-called prize fight at a camp of reputable, young professional men at Prairie Ford, on the Stillwater. The police directors were requested to suspend him, and upon a duly and legally conducted trial the directors exonerated the chief. Among the ardent supporters of Mr. Farrell are Directors Thompson, an ex-judge, and W. E. Crume, of the Crume & Sefton Paper Novelty Company. In order to create a feeling the same gamblers have petitioned the tax commissioners (the Board appointing the police directors) to suspend Messrs. Crume and Thompson for official misconduct in their support of the chief. Public indignation has been expressed, and the tax commissioners will ignore the baseless charges if they respect the wishes of the people. Mr. Crume has been an efficient public servant, and with H. H. Saubach, of the Dayton Paper Novelty Company, and Captain Wood, formed one of the best boards the city ever maintained.

P. H. Rue, assignee of the Friend & Forgy Paper Company, failed to secure a bidder on the plant the other day, and the property will again be offered for sale on Saturday, October 6. It is not as easy these days to dispose of a paper mill as it is to find a shining pearl in the Little Miami River.

Middletown and Springfield are to be given a chance to support morning dailies. Charles F. Gunckel, the once wealthy paper manufacturer, will furnish the financial backing for the paper in his town, it is understood. Both ventures will prove interesting experiments. Dayton could give either of the above named places an afternoon daily and not miss the gift at all.

The Harding Paper Company is filling promptly the order received from the Republic of Guatemala. Eighty tons of this contract are now being made at Excello, and a special roll for the watermark, which is the national seal of the Republic, has been ordered. This firm deserves complimentary mention for securing this gigantic order.

The Franklin Paper Company is running on a ten car order and business begins to brighten as a result.

Possibly the trade was given a slight surprise the other day when it was announced that Brooks & Co., of Cleveland, had secured the contract for supplying the State with super royal book paper for the ensuing year. The remarkably low price of $2.07½ was named.

It is altogether possible that Chas. F. Gunckel and others interested in the M. & M. Railroad will dispose of their stock, as there seems to be several prospective purchasers. Indications point to the fact that the road will be sold to advantage.

It is noticeable that Mr. Gunckel is yet in the business arena, although he has bid adieu to the paper trade. He said: "I still believe that I will receive the contract to light the city. I claim positively that my bid is the lowest and that I am entitled to the award. Of course if I fail to receive it, there is the gas company to fall back upon, and I can make gas so cheaply that competition will be annihilated." M. V.

NORTHERN NEW YORK.

[FROM OUR REGULAR CORRESPONDENT.]

WATERTOWN, N. Y., September 12, 1894.

Forest fires and drought have prevailed here all summer. Large tracts of valuable timber land in the Adirondacks have been destroyed and the loss cannot be estimated. In this pulp wood went with the other kind. For the first time in years the drought has been most severely felt in this part of the State, but nothwithstanding that the rivers have nearly run dry, the great chain of pulp and paper mills fed by the Beaver and Black rivers have not been forced to shut down. This is due to the reservoirs and State dams, which were put into condition to hold water for just such emergencies.

It was about 1888 when an agitation was set on foot in this part of the State to preserve the water power of the Black River. The State had years ago cut the river at Forestport, turning the stream at that point into the Black River Canal, which supplies water to the Erie Canal at Rome. During the high water of spring and fall, when the canals do not require it, there is always a great surplus; but unfortunately the canals and the mills want it at the same time, and that too when it is at the lowest stage. In the dry season of summer not a drop comes over the State dam at Forestport. The history of the efforts of those interested in the pulp and paper mills to obtain legislation to preserve the water for the dry period is interesting. Every effort failed until a bill was passed by the Legislature providing for the storing of water. This year there would have been a general suspension of manufacturing during July and August had it not been for this reserve supply. Up to the present time the wheels are being turned almost entirely by the outflow from the gates and the reservoirs on the Beaver and Moose rivers. The value of this can be estimated by the fact that there are 150 tons of paper alone made daily on the river, with a value of $7,500. The value of other products in the ordinary time is about the same, so that each day's stoppage of the wheels would represent a loss of income to this territory of at least $15,000. Multiply this by the weeks of drought which occurred this summer and the extent of the damage can be seen, as well as the money value of this system of storage reservoirs.

George C. Sherman, one of the commissioners in charge of the reservoirs, in speaking about the drought, said: "The value of the reservoirs at the head waters of the Black River, although these have not been used as advantageously as they will be again in the light of this year's experience, has been fully demonstrated. Without them, on account of the lack of rain during July and August, it is doubtful if a pulp mill on the Black River could have run during those months. The rainfall for the last named month was only .41 of an inch, against 7.86 inches last year. The streams tributary to the Black River, aside from the Beaver and Moose rivers, are all practically dried up, so that the flow of the river now is almost entirely from the reservoirs. Yet despite the extreme drought the power is better this year; not much, perhaps, but enough to be noticed by manufacturers who keep records. A demand for water first occurred on July 3. The gates were opened, but not sufficiently. Accordingly the flow was increased on August 1. Since then the commissioners have gauged the flow so as to maintain the river at its present height until September 15. This year's experience has shown that under ordinary rainfall there is a sufficient storage capacity to carry through at least eight weeks of low water, as long as usually occurs. A careful estimate was made at one of the dams with 14 feet head, both before and after the water was let out on August 1. It showed that at this dam alone the increased power was equal to more than 1,000 horse power. The wheels running used twice as much water as before, and there was water wasted over the dam, which was not considered at all."

Commissioner Babcock keeps daily record of the amount of water in each reservoir, the state of Black River at different points and many other matters which will have bearing on the use of the water another season. Before provision was made for gate keepers at each dam it is believed that the gates were opened or closed at the pleasure of log drivers. This has been stopped so far as it is any injury to the water power.

The Bagley & Sewall Company has added an immense lathe to its shops here. This addition to the equipment of this company makes its plant one of the most complete for general machine work in this part of the country. The new tool is a screw cutting engine lathe, weighing 20 tons and is fully equipped with all of the modern improvements, containing an automatic cross feed, compound rest, triple gear, and having a bed 30 feet long by 5 feet wide. The lathe will swing 6 feet over the bed and

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will take 19 feet between the cutters. The tool is intended for use in turning the dryers for paper machines, of which the product of this plant largely consists. The new tool was manufactured by Bement, Miles & Co., Philadelphia, Pa.

The International Talc Company has shut down mills Nos. 3 and 4 at Hailsborough. No. 4 is to be remodeled throughout, and No. 3 has had a new raceway blasted out preparatory to putting in a new flume.

Superintendent Harrigan, an experienced paper maker, has taken charge of the St. Lawrence Paper Company's mill, at Dexter.

O. E. Martin, formerly of Ogdensburg, and owner of a large pulp mill at Yalesville, has taken up his residence at Norwood with his family. Mr. Martin is a business man of ability, and a great addition to the locality where he will make his home.

The Dexter Sulphite Pulp and Paper Company is receiving its fall and winter's supply of pulp wood from Picton, Canada. It is being brought over in the large steam barge "Coaster." The same company is laying in its supply of coal, which it receives from Charlotte, N. Y. The steam barge "Alberta" is engaged in carrying it. The barge was compelled to dredge a channel through the sand bar before entering the Dexter harbor. The Government should take a hand, and make an appropriation to have a proper channel dredged out so that vessels can enter there without causing the shippers the annoyance and inconvenience of sending lighters to lighten them off.

The suit of William E. Leonard is yet on trial in the Supreme Court of this district. Leonard sued the Dexter Sulphite Pulp and Paper Company for damages to his house and property from the sulphurous acid gas which he alleges escapes from the mills in the sulphite treatment in making pulp. It is alleged in the complaint that the gas which escaped from the digesters or tanks destroyed vegetation. The company contends that the gas does not escape and is defending the suit.

W. T. Harrigan, of Black River, has removed to Dexter with his family to take charge of one of the mills.

The Remington Pulp Mill at Black River started up this week after a shut down of two weeks for repairs. W. E. T.

BOSTON.

[FROM OUR REGULAR CORRESPONDENT.]

EASTERN OFFICE PAPER TRADE JOURNAL,
67 FEDERAL STREET,
BOSTON, September 13, 1894.

There is little change to report this week in trade.

Business with jobbers is moving along at a fair pace, the improvement of past weeks holding on very well.

The scarcity of water throughout New England is getting to be quite a disturbing factor. Paper dealers find it impossible to get their orders filled as fast as wanted, because of the inability of mills to turn out paper as they would like to.

Some little rain fell in this section during the past week, but a good steady rain fall of several days' duration is needed to fill up the streams.

A little movement in rags and other grades of paper stock was noticeable during the past few weeks as is evidenced by the imports coming to hand. The receipts of paper stock for the past seven days at this port include 1,567 bales of rags, 843 bales, 258 coils of manillas, 490 bales of waste paper, 645 bales of flax waste, 754 bales of wood fibre and 557 bags of sizing. Considering how limited the imports of paper stock have been during the dull times of months past, the receipts now coming to hand are quite encouraging, and they give promise of big business to follow, which will certainly be realized when the paper mills of the country get to running on full time. Paper stock importers have had a long, hard pull and they will rejoice when the good times do come.

Charles D. Brown is spending the week in Maine visiting the several mills in which he is interested.

Harry T. Bartow is enjoying the attractions of Poland Springs this week.

Allan Fletcher, of Detroit, Mich., who is interested in the building of the sulphite fibre mill at Rumford Falls, Me., is making Boston the base of his movements, and is quartered at the Adams House.

Trade visitors are not as numerous this week as in the past, and dealers explain this because of the low water, which prevents hustling for orders which cannot be filled.

Visitors reported were: J. Fred Webster, of Portland, Me.; F. S. Lyman, of Augusta, Me.; F. C. Whitehouse, of Brunswick. Me.; Wyman Flint, John W. Flint and D. W. Flint, of Bellows Falls, Vt.; Hon. Rodney Wallace, of Fitchburg, Mass.; M. L. Bassett, of Lowell, Mass.; C. S. Barton and Mr. Williams, of Worcester, Mass.; D. W. Glenn, of Springfield, Mass.; J. H. Appleton, of Holyoke, Mass.; Charles S. Mayo, of Lawrence, Mass.; ex-Governor Cheney, Frank P. Carpenter, of Manchester, N. H.; C. M. Rice, of Portland, Me.; Wm. Foulds, of Manchester, Conn.; Robert Linden, of Pawtucket, R. I.

Adna T. Denison, one of the old time paper manufacturers of Maine, is met occasionally in local trade circles. He is the New England representative of W. H. Parsons & Co., of New York, with a city office in the *Globe* building. Mr. Denison is securing very good results in the field to which he devotes his attention, and has built up quite a business for his house in this section. His technical knowledge of paper and his ability as a salesman, coupled with a natural fund of good cheer and personal magnetism, are qualities not possessed by every paper salesman met with, and as he is persistent in his endeavors he shows good results for the interests which he represents.

C. E. Hamner has been visiting the city trade in the interests of the paper manufacturing firm which he started in to represent the first of the month.

Willard K. Rice has recently connected himself as salesman with J. C. Godfrey, paper dealer, No. 405 Atlantic avenue, this city. F. M. Whitney is also representing this same firm.

Charles O. Stearns, treasurer of the Eastern Paper Bag Company and of the Western Paper Bag Company, mourns the loss of his wife, who was buried to-day from the family residence, at Lynn, Mass. Among those present at the funeral services was Col. J. P. Jordan.

The weather this week, with the exception of last Monday, which was very sultry, has been cool and invigorating—just the kind of weather for active business.

DELESDERNIER.

HOLYOKE.

[FROM OUR REGULAR CORRESPONDENT.]

HOLYOKE, Mass., September 13, 1894.

Low water seems to be more of a factor in local business just now than anything else, and unless relief comes soon in the shape of copious rain, the manufacturers will be at their wits end to keep the machinery running half of the time. The head gates at the dam were shut down from Saturday night until Monday morning, and the mills were enabled to run up to last night.

To-day the mills are again shut down in order to get water sufficient for another day's run on Friday. Every time the gates are closed the water increases about 5 feet above the dam, and with a good stiff rain storm this could be maintained. The Holyoke Water Power Company has no record of a season where the water has reached its present level.

Power is becoming a very costly thing in this city.

It seems rather hard that this condition should prevail just as business begins to improve a little, giving promise of busier and more profitable times not far distant; but the ways of Providence are past finding out; therefore let us hope that some good may result.

Someone has figured it out that every shut down of the mills causes a loss in wages of $10,000 or more to the help employed, and they can ill afford to lose it.

James H. Manning, James Ruso and James Purcell, of Albany, were in town this week consulting with Superintendent Townsend, of the Purcell Envelope Company, and President Powers, of the Connecticut River Paper Company, relative to the starting of the business here. The men seemed to be pleased with the headway already made, and everybody appears to be enthusiastic over the outlook.

The machinery is being set up in the local mill as fast as it arrives, and it is hoped to be able to start within a very short time. The contract for the new building has not yet been let, but it probably will be in a few days. It will stand in front of the present Powers Building, and it will have a switch track for the shipment of finished goods. The very latest improved machines will be put in.

The Whiting Paper Company's No. 2 Mill on Dwight street has undergone some very radical improvements since last spring and it is now in better condition than ever. Nine new beating and washing engines have taken the place of the old ones. The engine room has been provided with a new floor which rests on iron beams. All of the old iron water pipes have been superseded by copper ones, and the machine room has a new skylight. These improvements cost $40,000.

Mayor Whitcomb has decided that he cannot devote another year to the city, and has announced that he will not be a candidate for re-election this fall. This will cause much regret, because Mayor Whitcomb has made a very capable official. He is a manufacturer and business man of many years' experience, and has given the city a practical and common sense administration of its affairs.

The case of Contractor F. A. Rivers against the Carew Manufacturing Company, wherein Rivers claimed that the company owed him $943 on a contract, has been reported on by the auditor to the effect that if the check accepted by Rivers was understood to be in full settlement of his claim then the company cannot be held, but if it was not so understood he can claim the amount of the balance, with interest.

The Morley Paper Company has nearly finished the rebuilding of a part of its mill at Landville, which was destroyed by fire two years ago. The company will soon begin to manufacture a peculiar kind of stiff paper which will be used for shoe buttons. Mr. Morley invented a number of years ago a machine for the placing of buttons on shoes which is largely used in shoe manufactories.

The George C. Gill Paper Company is building a storehouse which will be 130 feet long and 50 feet wide.

Frank E. White, formerly of this city, but now connected with the Syms & Dudley Company at Watervliet, Mich., has been visiting friends here of late.

The lovely fall weather which prevails just now is too good to last long. H.

FOX RIVER VALLEY.

[FROM OUR REGULAR CORRESPONDENT.]

APPLETON, Wis., September 11, 1894.

The condition of trade among the Wisconsin mills has not shown any marked changes since last report. If anything there is a little better feeling, but it is a conservative statement to say that trade is just about holding its own. The first of the month was characterized by a little spurt of orders, but it did not last, as it was hoped it might.

Time only will reveal what is to be the outcome of the so-called "English syndicate" effort to buy the paper mills in this State. There is nothing new in particular to be said along the line. Public interest in the matter is yet maintained at the highest pitch, and the newspapers continue daily to discuss the chances pro and con. The manufacturers continue to have meetings for some unknown purpose, as previously stated, and Mr. Butterworth is running about over the field in a very busy way. It is evident that the scheme is not settled and the final result is involved in mystery. The failure of the previous efforts of this kind is pointed to as evidence that there will be no consummation this time; but, on the other hand, itis urged that past endeavors have never been conducted under such authentic auspices. One manufacturer said to your correspondent yesterday that his business was so good that he should not think of giving any option upon his property. He is the only one, however, so far as known, who has made such a positive statement.

The Kimberly & Clark Company has just concluded another arrangement similar to that of last year with the Van Nortwick brothers, whereby it leases for six months the water power belonging to the old Appleton Paper and Pulp Company property, now occupied by the Van Nortwick Pulp Mill. The pulp mill will be shut down and its power used to supplement that of the Kimberly & Clark Company and Atlas Paper Company's mills during the approaching low water season.

S. R. Wagg has severed his connection with the Combined Locks Paper Company in the capacity of its superintendent, the change taking place on the 4th of this month. No announcement has been made regarding his successor. Mr. Wagg has no definite plans for the immediate future other than that he intends to take a rest from his labors for a short time. He has been continuously employed for about thirty years and thinks that he is entitled to something of a vacation.

The general offices of the Van Nortwick paper companies, which have been located in Chicago, which has been the business headquarters, will be discontinued and Appleton will be made the general central distributing point for the companies. Messrs. Armstrong and Mendsen, who are so well known to the trade, will make their headquarters in this city.

As the fall season approaches the time for starting up the new mills in this district draws nigh. The pulp department of the Nekoosa plant was put in operation last week, and a carload of pulp is now being shipped out every day. The new mill of the Dells Paper and Pulp Company, at Eau Claire, is expected to be ready to run in about six weeks. One of the machines is set up and the other is in course of erection. The pulp mill will be ready to start in ten days. At Oconto Falls all of the machinery is being set up in the new mill of the Falls Manufacturing Company, and the plant will be able to go ahead between October 1 and 15. The buildings and the water power at the mill of the Wolf River Paper and Fibre Company, at Shawano, have been finished and the wheels and shafting are now being put in place. A few weeks more will see this mill also in operation.

On account of the shortening water power wood pulp is climbing up in price. It is now quoted at $1.10. The recent terrible forest fires in this State, as far as known, did not injure any of the pulp timber. Several new camps are being established in the woods by the Pulp Wood Supply Company.

The John Strange Paper Company, of Menasha, is building a new oil house in connection with its mill.

The Gilbert Paper Company, of Menasha, has just taken down the old brick smokestack which did duty before the new boiler house and stack were constructed.

Mrs. McMan, a sister of Superintendent Fred. Huband, of the Gilbert Paper Company, and her husband were both fatally burned this week by the explosion of a can of gasoline in their home in Fond du Lac, in this State.

The Manufacturing Investment Company, of this city, is putting down an artesian well on its mill property. At a depth of 300 feet a good flow of water was secured, but shortly after the drill went into a bed of sand and the flow was reduced one-half. The drilling is still going on.

J. H. McCormick's second game of baseball between the paper makers of Appleton, Kaukauna, Neenah and Menasha did not materialize last Saturday. Some fine horse races at Kaukauna were postponed to that day on account of rain, which made an undesirable conflict, and the issue of Appleton and Kaukauna versus Neenah and Menasha is still in doubt.

J. W. Whorton returned last Saturday night from his trip to New Brunswick.

Architect C. B. Pride is in Chicago on business.

Frank Taylor has returned from his extended vacation trip to the East.

Mr. and Mrs. N. H. Brokaw entertained a company of friends last Thursday evening in honor of a double anniversary, the

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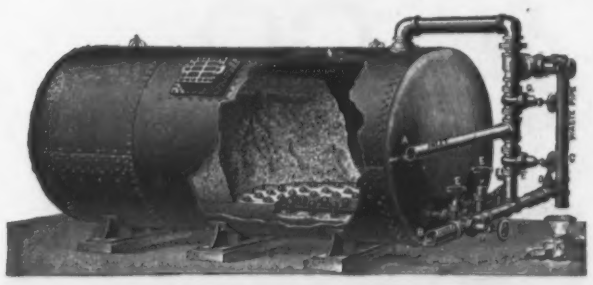

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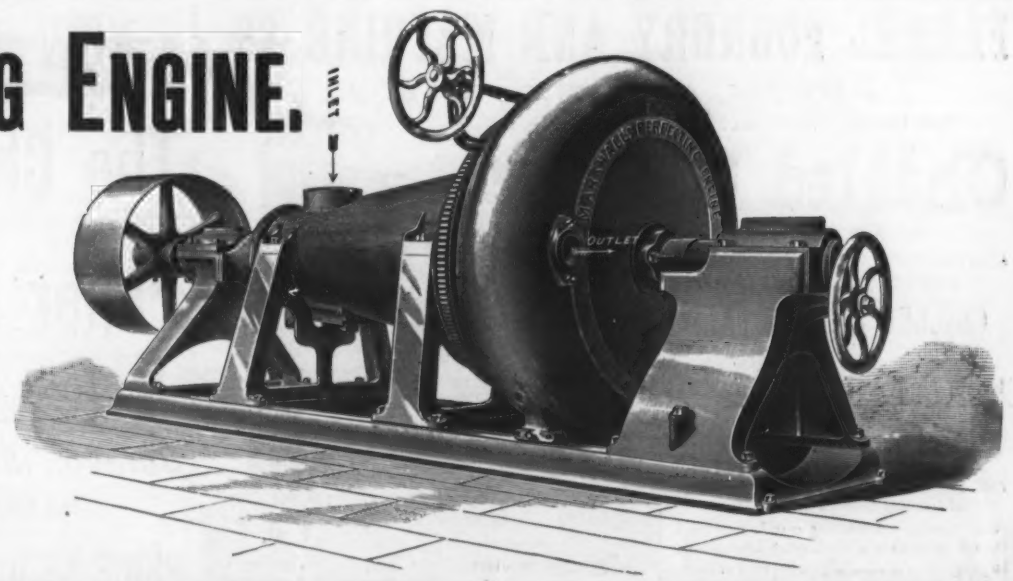

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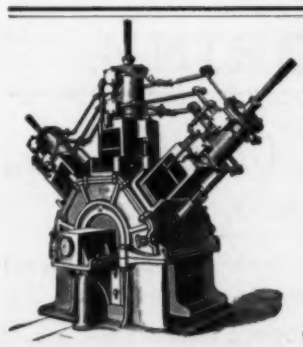

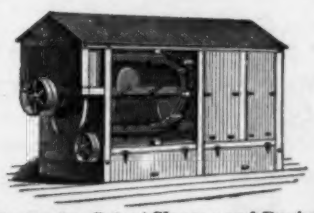

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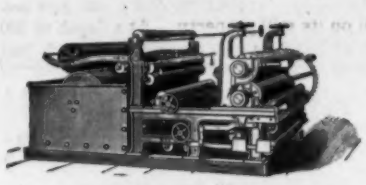

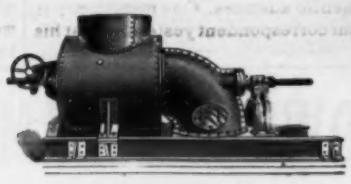

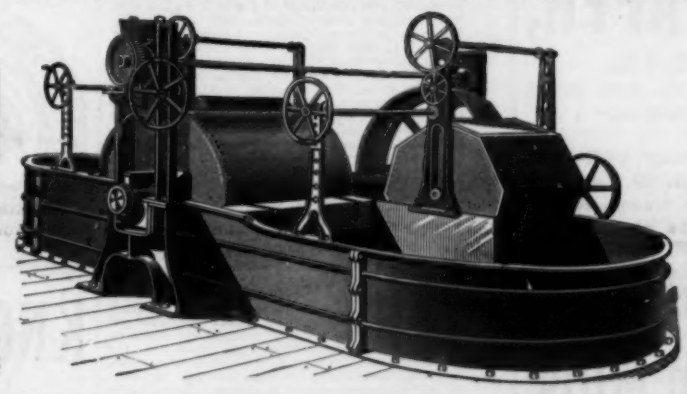

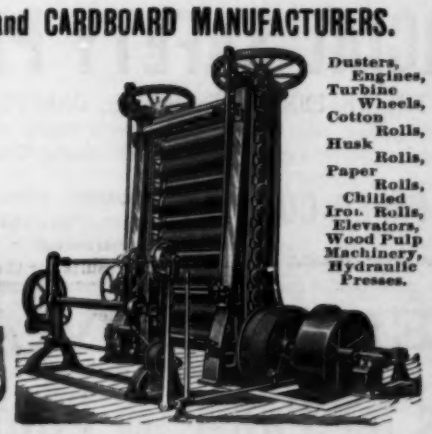

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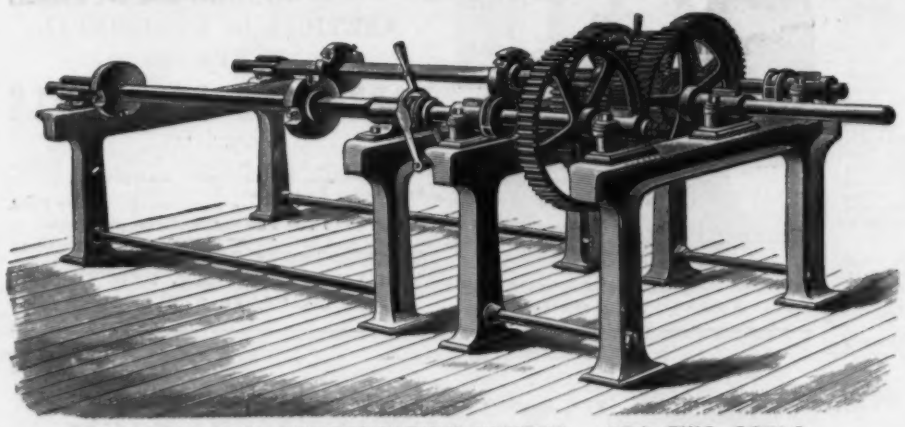

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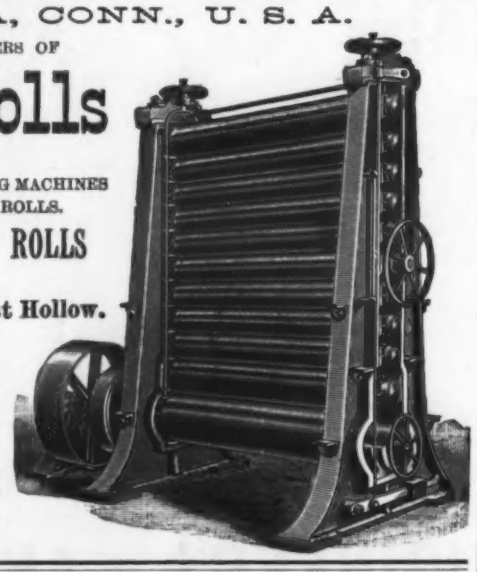

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Lift Rods operated by wheels above for raising any number of the rolls.

Housings so made that the rolls may be taken out endwise through frame.

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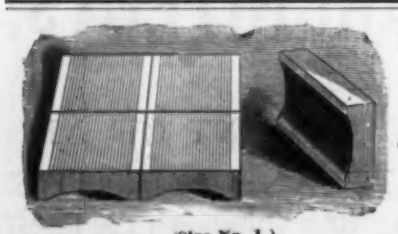

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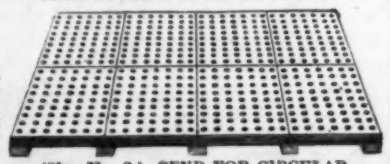

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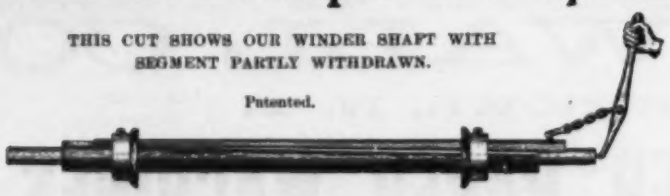

THIS Shaft is designed for making rolls for plugging. Being perfectly round, it gives a roll practically true from the very centre to outside and a true centre for plugging, and a much more solid roll than with other shafts; it may be used on a drum winder, if desired. When segment is withdrawn, which requires but little strain, the pressure is sufficiently reduced to allow easy removal of shaft.

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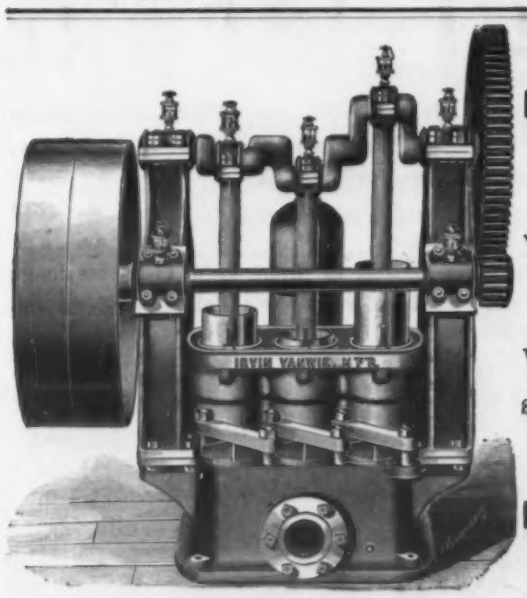

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CHAPTER III.—**Processes for Isolating Cellulose.** Rag boiling; special treatments for various fibres, as jute, straw, esparto; review of miscellaneous processes for treating wood; the water process, aqua regia, &c.; the soda process, history; preparation of liquors, boiling, washing, recovery, sources of loss; analyses of chemicals and liquors; the sulphite process, history; general principles; the different systems; liquor apparatus; preparation and analyses of liquors; digesters; linings; boiling; subsequent treatment of pulp; waste liquors; recovery. The sulphide and sulphate processes.

CHAPTER IV.—**Bleaching.** General principles; bleaching agents; bleaching powder; deterioration; analyses; preparation of bleach liquors; use in chests, engines, drainers; hot bleaching; acid bleaching; use of alum; chlorination and oxidation of fibre; washing stock, antichlors; loss in bleaching; ozone bleach; hydrogen peroxide; permanganate; sulphurous acid; special processes for various fibres.

CHAPTER V.—**Sizing and Loading.** Rosin; preparation of size; free alkali; free rosin; alum; analyses of alums; free acid; basic alums; sizing power; resinate of alumina; moss; casein; wax; starch; animal sizing; preparation and use; drying; loading; analyses of clays, agalite, pearl hardening, &c.; use; retention; ash; combined water; effect of alum and starch.

CHAPTER VI.—**Coloring.** Mineral colors; vegetable and animal colors; aniline colors; chemical properties; effect of alum and traces of bleach or alkali in different colors; distinguishing tests; effect of different waters.

CHAPTER VII.—**Water and Water Supply.** Character and analyses of different waters; ground waters; surface waters; river water; artesian well water; hard and soft waters; boiler scale; effect of waters on size and colors; various systems of filtration; use of alum; softening water; self purification of streams; natural filtration; effect of storage; vegetation in ponds; crenothrix; consumption of bleach by waters.

CHAPTER VIII.—**Chemical Analysis.** Description of apparatus and methods for testing the purity and strength of all paper making chemicals, colors, &c.; common impurities and adulterants given; full description of methods of analysis for sulphite and soda liquors, bleach solution, alums, &c.

CHAPTER IX.—**Paper Testing.** Full account of the latest German methods for testing and classifying papers; determination of ash; kind of sizing; amount of sizing; free acid and chlorides; strength; proportion of ground wood; kind and condition of fibres.

CHAPTER X.—**Electro-Chemistry,** with reference to bleaching, manufacturing of pulp, manufacturing of chlorine and soda.

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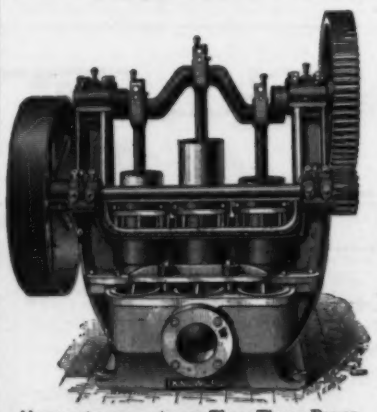

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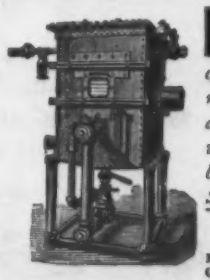

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fourteenth of their wedding day and the first of the birth of their little son.

W H. Bucher, of Cincinnati, has been visiting in this valley for several days past.

Mrs. Alex. McNaughton, of Kaukauna, died last week, and was buried in this city last Saturday.

Thomas E. Nash, of Nekoosa, is in town to-day.

E. E. McCord, of Chicago, was a recent visitor to this valley. FOX RIVER.

PHILADELPHIA.

[FROM OUR REGULAR CORRESPONDENT.]

PHILADELPHIA, Pa., September 13, 1894.

Summer may now be considered as past, and if we take into account the weather of the last three days fall has fairly begun. It has been a summer of sudden changes in everything except business, which has been monotonously dull until the beginning of this month. The weather has left nothing to be desired in the way of variety. Saturday, Sunday and Monday were sweltering; Tuesday night, Wednesday and to-day verging on frost.

Business, I say, has improved since September 1. There is no boom nor anything like it, but the tone of the market is much more buoyant and the trend of inquiry is more promising. This fact was prominent in the answers to the stereotyped inquiry I made to-day of all the trade whom I met: "How is business and what is your opinion of the outlook for trade?"

Chas. M. Stoever & Co. responded: "There has been some improvement during the month, and collections are fair, but there is no 'snap' to business as yet."

S. M. Kennedy: "Business is picking up. We have sold more goods up to date this month than during all of August, but collections are frightfully hard."

Nescochague Paper Company: "Improving in a way, but there has been scarcely time enough since the tariff was settled to note much change, excepting from the tone of letters from buyers, which certainly indicates that things are on the mend. We are having many more inquiries from buyers than heretofore, and these customers are naturally the first to feel any improvement. Orders also are coming in more freely, and we should say there is a decidedly better feeling in the market."

Glen Mills Paper Company: "Trade with us is a little better, and seems to be picking up somewhat. We are running steadily and have orders ahead for fibre papers, but it still requires alarmingly low prices to secure a large order. Although there is no great improvement as yet, prospects are decidedly better, and we are getting many inquiries for parchment papers. However, we are only now in a condition to do business satisfactorily to ourselves, so we have lost little from the dullness of the past summer."

Jessup & Moore Paper Company: "Within the last three weeks business has been slightly better than at any time during the past year, but we are uncertain how long it will continue so."

A. Balfour & Sons: "Business is somewhat better. It could be much better still without overworking anyone, but there has certainly been an improvement during the present month."

Irwin N. Megargee & Co.: "We find trade slightly improved. Orders both from out of town and from city customers are coming in much more freely. There is no startling improvement—no 'boom'—but indications point to a gradual improvement."

A. G. Elliot & Co.: "Business is better than during the summer, which is but natural and not in any way remarkable; but we notice more small buyers dropping in than it is customary to see even in the fall; and that is an indication which we regard as more encouraging than the advent of larger buyers. The large contracts we are all after, as a matter of course, but the small trade are the first to feel either good or bad times, and their appearance is always a good sign. After all, business ought to improve—it is to be expected. The tariff is now settled, and, whether we like it or not, we must work under it during the next three years; and the very fact that it is settled must stimulate business."

The general tone, you will see, while wholesomely conservative, is quite hopeful, and everyone seems to be encouraged by the final settlement of the tariff question.

There are rumors on the street of an impending change in one of our largest houses, which is said to be set for January 1; and rumor also has it that a prominent out-of-town manufacturer expects soon to open in this city a large warehouse and store.

The air in the printing and paper world is now filled with the advance rays of the coming Typothetæ convention. An elaborate programme has been arranged by the committees, of which that on entertainment includes eighty-eight members. The meeting will be held at the Hotel Metropole, one of the best of the city's new hotels, and will be in session from the 18th to the 21st.

T. S. Armstrong, late local representative of the New York and Pennsylvania Company, has demonstrated to the satisfaction of all concerned that he has "as much backbone as an eel," by resigning from the service of that company on September 1. He has been with the concern since January 1, 1892, and is recognized here as one of the best and most influential salesmen of book papers in the city, while he was formerly classed as the leading salesman of the country in paper bags and straw papers. It is said that he is about arranging to represent here two large lines of book and supercalendered papers.

I am told that one of our leading houses has adopted a Chinese puzzle which it requires its salesmen to solve before they can have an order entered and filled.

Richard Smith, one of the organizers of the well-known firm of MacKellar, Smiths & Jordan, type founders, died on the 8th inst. in Paris. He was born in this city on March 2, 1821. His father, who was also a type founder, entered the firm of L. Johnson & Co. in 1833, where his son soon became connected. In 1845 he entered into partnership with Lawrence Johnson, his brother, John F. Smith, also being in the firm. Lawrence Johnson died in 1860 and Thomas MacKellar, John F. and Richard Smith succeeded the old firm. In 1885 the the firm became incorporated under the name of the MacKellar, Smiths & Jordan Company, at which time Richard Smith retired from active management, although he held the office of vice-president until the time of his death. Mr. Smith was married in 1848 to Sarah A. Walker, who survives him. For some time he had been living at the Hotel Waldorf, New York, and his last visit to Philadelphia was on July 20, when he came over to bid some of his friends good-bye before sailing for Europe.

Among recent visitors to the trade were Chas. H. Mullin, Mt. Holly Springs, Pa.; E. S. Bradford, Jr., of Geo. R. Dickinson Paper Company, Holyoke; Geo. E. Townsend, representing Jas. Townsend, Newburgh, N. Y.; L. Hayward, secretary of the Linden Paper Company, Holyoke; Charles Southworth, of Hampshire Paper Company, Holyoke; Mr. Chapin, of the Ticonderoga (N. Y.) Paper Company; Jonas Knight, of Ashton-under-Lyne, England, and Albert Saloman, of Saloman & Co., New York.

Harper & Brother, printers, removed on September 1 to 200 South Tenth street, where they have greatly increased facilities for handling publishers' business.

The Chemical market is very quiet, sales being small. Spot Bleach is firm at 1¾@ 1.80c. with small sales reported. Caustic Ash is in limited demand at 1¾c. for 48 per cent. STYLOGRAPHIC PEN.

Supplies—Department of the Interior.

Following is a list of the awards for annual supplies for the Department of the Interior:

J. C Addison, 627 Louisiana avenue, Washington, D. C., part of 21, 26a, 26b, 204, 205, 211, 231, part of 232, wire.

American Lead Pencil Company, 50 Howard street, New York, part of 140a, part of 140b, American.

Carter R. Ballantyne, 428 Seventh street, Washington, D. C., 5, 10, 15, 16, part of 21, 23a, 29, 32, 33, 66, part of 76, 78, 96, 97, 100, 106a, 110, 134, 163, part of 171, 176, 177a, 177c, 181, part of 182, 200, 201, part of 232, 249a, 249b, 249c, 249d, 249e, 258, 258c, 258d, 258e.

C. S. Braisted, 73 Franklin street, New York, 62, 65, part of 76, part of 140a and 140b, 141, 142, 143, 148, 149, 150, 161.

E. J. Brooks & Co., 51 Dey street, New York, 88a, 88b, 178, 217, 224.

Caws Pen and Ink Company, 168 Broadway, New York, part of 171, part of 182.

J. H. Chesley & Co., 1004 F street, Washington, D. C., 89.

Columbia Rubber Works Company, 65 Reade street, New York, 162a, 162b, 162c, 162d, 162e, 206a, 206b, 206c, 206d.

Dewey & Askew, 166 William street, New York, 8.

Easton & Rupp, 421 Eleventh street, Washington, D. C., 24, 51, 60a, 60b, 60c, 60d, 60e, 60f, 61a, 61b, 61c, 61d, part of 140a and 140b, part of 171, 174, part of 182, 183, 202, 203, 207a, 207b, 207c, 210, 213, 214, 218, 219, 220, 221, 223a, 223b, 223c, 230a, 230b, 230c, part of 236, part of 237, 239, 247, 248, 250.

Fairfield Paper Company, Fairfield, Mass., 34.

Charles Hellmuth, 379 Pearl street, New York, 263.

E. Morrison Paper Company, 1009 Pennsylvania avenue, Washington, D. C., 1, 2, 17, 18, 19, 20, 25a, 25b, part of 76, part of 171, part of 182, 252, 261a, 261b, 261c.

George F. Muth & Co., 418 Seventh street, Washington, D. C., 104, 108, 112, 113a, 113b, 113c, 113d, 113e, 117, part of 140a and 140b, 233.

John C. Parker, 617 Seventh street, Washington, D. C., 81, 235, part of 236, part of 237, 254.

Parker, Stearns & Sutton, 238 South street, New York, 63, 64, 68.

Peter Adams Company, 38 Park row, New York, 257, 259a, 259b, 260a, 260b.

Fred. A. Schmidt, 504 Ninth street, Washington, D C., 80, 95, 106b, 258a.

Shoemaker & Busch, 602 Arch street, Philadelphia, Pa., 225, 228.

Siebold & Co., New York, 255.

The Springfield Envelope Company, Springfield, Mass., 242a, 242b.

John H. Tissot, Jr., 111 Duane street, New York, 86, 87.

D. A. Tower, 308 Broadway, New York, part of 76, 106c, 130c, 131, 160a, 160b, 160c, 160d, 160e, part of 171, part of 182, 226b, 226c, 226d, 227a, 227b, 227c, 227d.

Valley Paper Company, Holyoke, Mass., 4.

F. Weber & Co., 1125 Chestnut street, Philadelphia, Pa., 107, 262.

Wm. A. Wheeler, Jr., 206 Broadway, New York, 67, 130b, 130d, 130f, 132, 208, 212, 215.

Wyckoff, Seamans & Benedict, Le Droit Building, Washington, D. C., part of 236, part of 237.

PAPERS.

Item 1. 500 rms foolscap paper, 14 lbs to the rm, $1.15.

2. 500 rms legal cap, 14 lbs to the rm, $1.15.

4. 3,000 rms letter paper, cream, unruled or ruled, $1.05.

5. 200 rms press copy paper, white, 20½x24½ in, 90c.

8. 300 rms commercial note, 7 lbs to the rm, 67c.

10. 175 rms note paper, cream, linen stock, $2.54.

15. 10 rms envelope paper, gold, 20x25 in, $2.70.

16. 150 rms tissue manilla paper, cap size, 9c.

17. 100 rms wrapping paper, manilla, 40x48 in, 150 lbs to the rm, $7.88.

18. 100 rms do 36x40 in, 90 lbs to the rm, $4.73.

19. 500 rms do 24x36 in, 60 lbs to the rm, $3.15.

20. 25 rms do 18x24 in, 40 lbs to the rm, $2.10.

21. 150 rms do 19x24 in, to weigh not less than 100 lbs to the rm, $6.45.

23a. 1,000 rms typewriter paper, white, 8x10½ in, $1.85.

24. 20,000 sheets semi-carbon and ink manifold paper; a, 15,000 sheets semi-carbon paper, cap size, 1 2-10c; b, 4,000 sheets ink manifold paper, copyable or non-copyable, letter size, 3c and 3¼c; c, 1,000 sheets do cap size, 3¼c and 3½c.

25. 600 rms paper, equal to American linen; a, 500 rms 8x10½ in, $1.20; b, 100 rms 8x12¼ in, $1.42.

26. 75 rms paper, equal to Paragon No. 1½, no award; a, 10 rms 8x10½ in, $1.20; b, 75 rms 8x12½ in, $1.40.

29. 25,000 sheets bond paper, white, 16x21 in, 1 7-10c.

31. 25,000 rolls paper, toilet, in rolls, 6¾c.

32. 5,000 sheets cardboard, extra heavy, white, 18x22 in, 1 9-10c.

33. 35,000 sheets cardboard, white, coupon blank, 8x11½ in, 22-100c.

34. 25,000 sheets bristol board, 3 sheets, 15x20 in, 3 8-10c.

ENVELOPES.

51. 60,000 envelopes, adhesive, Baronial No. 1, 4⅛x5⅛ in, $4.15 per M.

Tariff Decisions.

The Board of General Appraisers has rendered the following decision: Sigmund Reinach and B. Reinach *v.* Collector at New York—Illustrated periodicals seized from mails imported February 24 and April 26, 1894. They were assessed at 35 per cent. under paragraph 420, and claimed to be exempt from duty under paragraph 657 as "periodicals." The board held the goods to be not periodicals. Besides the same being imported by mail, contrary to law, they were seized by the collector under the provisions of article 305 of the customs regulations of 1892. The penalty here imposed was equal to the duty. The board has no jurisdiction in this matter, and the only remedy for the importers is to apply to the Secretary of the Treasury. The protest was overruled.

A useful little book for all persons having trade relations with Canada has recently been issued by Morton, Phillips & Co., publishers, Montreal, Que., under the title of "Customs and Excise Tariff, with List of Warehousing Ports in the Dominion." The book contains the full text of the Canadian customs tariff, with a list of articles on which specific duties are levied, arranged as an appendix for convenience of reference; a table of excise duties; a list of ports of entry and out-ports; a table of equivalent weights; wharfage rates and dues at the principal ports; tables of the equivalent and customs money values of all of the principal commercial nations, and three or four pages of notes explanatory of the abbreviations and the meaning of various specific terms used in the tariff text. The corrections are brought down to August 25, 1894, so that it gives the latest word regarding the matters contained in it.

Postal Delivery in New York.

Correspondents of New York houses will find something of interest in the appended extract from a circular issued some little time ago from the New York Post Office. The establishment of some new sub-stations lately in the business section of the city emphasizes the points therein set forth. The delay involved in sending letters to the sub-stations and thence by carriers to the business addresses of the firms for whom the communications are intended can be overcome in every instance where the houses have boxes in the General Post Office. Following is the extract referred to:

"The delivery of letters through lock boxes at this office will be greatly facilitated if they are so addressed that they may be at once recognized as 'Box Letters.' This could, of course, be best accomplished by the addition of the box numbers to the addresses, but it is understood that it is not always practicable to induce correspondents to adopt this plan, and that they cannot be expected always to remember the proper numbers. The same object, however, can be secured by the use of the words 'Lock Box' (without the addition of any number). These words in the superscription of a letter will insure its proper treatment in transit by clerks in railway post offices as well as by clerks in this office, who will place it among those intended for box delivery—thus saving the time that would otherwise be required to separate it from among those intended for delivery by carriers, and of course facilitating its prompt delivery."

Secretary Smith, of the St. Louis Bank Note Company, was arrested in St. Louis on September 5, and the arrest of Clarence C. Cheney, the president, and John Holmes, an agent, followed on September 10 in Chicago, where both resided. The two last named defendants had previously been notified that the Government would begin the prosecution and agreed to surrender and give bail. They were arraigned before Commissioner Hayne, who fixed their bail at $5,000 each. The defendants gave bonds for their appearance for trial at St. Louis on November 5. The St. Louis Bank Note Company is charged with violating the law by printing for the State of Mississippi special currency warrants which bore a striking resemblance to United States money. Several officials high in position in that State are also implicated. They are J. M. Stone, Governor; W. W. Stone, Auditor, and Mr. Evans, Treasurer. The United States Marshal arrested them on September 9, and they gave bail in the sum of $1,000. This complication is the result of an attempt on the part of the Legislature of Mississippi to provide for a deficit in the State's revenue to the amount of $200,000, which would be needed before the Legislature could again legally convene. The question of issuing bonds was considered and adopted. They were issued in denominations of $5, $10 and $20, and in June last $50,000 of the warrants or bonds were received from the St. Louis Bank Note Company, which had been employed to do the engraving. The warrants bore a close resemblance to United States greenbacks. A vignette of Governor Stone appeared in one corner. There was a legend which stated that they were redeemable at the State Treasury on January 1, 1896, and would bear interest at 3 per cent. At this juncture Chief Hayne, of the Secret Service Division of the Treasury Department, wrote to Governor Stone that he was entrenching upon the prerogatives of the Treasury Department and demanded the surrender of the plates and warrants in his possession. In reply Governor Stone said that he knew his rights and that he was prepared to defend them. The case will be thoroughly contested, for the question which will come to the front will be as to the right of the State or of any State to issue such warrants.

The Non-Antem Sulphite Digester Co.

310 TEMPLE COURT BUILDING, NEW YORK,

BUILDERS OF

E. MEURER'S

Patent Sulphite Pulp Digester.

THE HUDSON RIVER WATER POWER AND PAPER CO.,

HARTFORD, Conn., June 4, 1894.

THE NON-ANTEM SULPHITE DIGESTER CO.,
310 Temple Court, New York City:

Gentlemen—Previous to purchasing a Sulphite Digester with your lining our superintendent, Mr. Duncan, and myself had looked into a good many kinds of linings for Digesters, and after a very careful and thorough inquiry and investigation we decided that it would be for the best interests of our company to adopt your lining for the large Digester for which we have just contracted.

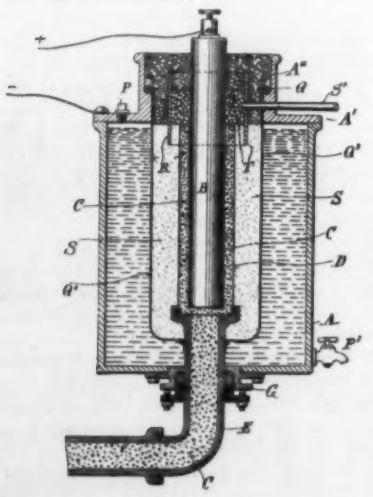
Yours truly,

THOMAS DUNCAN, Treasurer.

Apparatus for Manufacturing Caustic Alkali.

In the production of caustic soda by the electrolytic decomposition of a solution of chloride of sodium, there have been employed between the electrodes in the decomposition tank various forms of diaphragms or partition composed of or containing materials of such a nature that the diaphragms are rendered impervious under normal conditions to the solutions and fluids contained in the apparatus, without preventing or impairing the action of electrolysis. It has been found, however, in practice, that practically all of the materials most available for use in such diaphragms contain organic matter and impurities, the presence of which is objectionable for various reasons.

Where the anode is composed of carbon and sulphur, the latter being used as a binding agent, surrounded by a mass of pulverized anthracite coal contained in a suitable bag or receptacle, sulphuric acid is formed, and also other compounds such as chlorides and sulphates of aluminium, iron and calcium, which are presumably due to the chemical action of the above and other acids



Electrolytic Apparatus.

upon such impurities as may exist in the material used for the diaphragm and the anode. These substances, being heavy, do not flow off out of the apparatus under the impelling force of the current, but remain in and around the anode so that when the solution from the outer tank is drawn off they infiltrate under more or less pressure through the coal dust to the bag or other receptacle, upon which they have a very destructive effect.

Special means have been devised for getting rid of these destructive impurities, by providing a channel through and from the anode bag or receptacle, through which they may flow off by reason of their greater specific gravity. These and other improvements are illustrated in the accompanying drawings.

A is an iron cathode tank having a tightly fitting cover, A', provided with a neck, A'', a cock, P', at the bottom for drawing off the contents and an aperture in the top provided with a plug, P, for introducing the solution to be decomposed, usually chloride of sodium, and permitting the escape of hydrogen gas.

B is an anode, preferably composed of powdered carbon and a suitable binding agent. Around the carbon anode is a mass of granulated carbon, C, and around this a mass of pulverized coal dust, S, held up by a bag, Q', the coal dust having being reduced by any known means to such a finely divided condition as to form an impalpable powder, in which condition it makes a diaphragm which is practically amorphous or without pores, and which is impervious to fluids unless under abnormal conditions of pressure or electrolytic transfusion. In assembling these materials, the anode B is inserted into the bag D, and the grains of carbon C are packed in around it. Other materials than carbon may be used in this bag, as for instance broken glass or sand. The upper edge of the larger bag Q' is then secured by a ring, Q, to a groove in the interior of the neck A'', and its lower end, which is open, is tied or made fast around the end of a section of ordinary vitrified tile pipe, E, that extends through a stuffing box, G, in the bottom of the tank A. The anode and bag D are then introduced into the bag Q', until the bottom of the bag D rests in and closes the flaring or bell mouth of the drain pipe E. The space around the bag D in the larger bag is then packed with pulverized anthracite coal up to the top of the tank. A collar of glass, R, is then inserted in the neck A'' around the anode, and in the open end of bag D, and partially filled with coarse grains of carbon, T. A pipe, S', for the escape of chlorine gas extends from the mass of carbon grains T through the collar R and neck A''.

The neck of the tank is hermetically sealed with pitch or other suitable material.

The purpose of the bag D is merely to hold the coarse grain of carbon or sand in position while the coal dust is being packed in the bag Q', and the bag is rapidly destroyed by the acids which form around the anode after the current is turned on. To prevent the carbon grains from falling down into the pipe E the latter is packed with the same material.

In this apparatus the heavy acids and impurities which form in and around the anode are afforded a free downward passage to the pipe E, by which they are carried off as fast as formed. The function of the carbon grains around the anode being to afford a passage for the flow of the acids, it will be seen that the same object may be secured in other ways.

New Inventions—LI.

[WRITTEN FOR THE PAPER TRADE JOURNAL.]

By Geo. Damon Rice.

Poplar wood fibre, well beaten and subdued, is now being converted into block pavement for street use. It is intended to take the place of wooden paving. There are many hundreds of miles of streets in the country which are paved with wooden blocks. These blocks are good at first, but as soon as they begin to split, sink down at one side, warp, shrink or expand, poor wheeling results. Perhaps a wooden pavement will do good service in a main city thoroughfare for three years; after that much repairing is necessary to keep the street in fit condition for traffic. It is proposed to do away with the above mentioned defects by first reducing the stock to a pulp and then casting it into the shape desired for street paving. Certainly this would do away with cracking blocks, as well as giving an opportunity for casting the blocks into the most effective shapes. Furthermore, the liability of shrinkage and swelling of blocks is less when the blocks are made from a pulp substance.

A few drawings are given to illustrate the method of using the new style blocks. Figure I. has been drawn with the view of illustrating the principal defects of the common wooden block system. The blocks A rest upon the prepared foundation B in the usual manner. An examination of the blocks after all kinds of wheels have run over them for a year or so, and after having been subjected to varying conditions of the weather for two seasons, will show that some of the blocks are cracked, like C and D, or tipped to one side, like E. In such condition the wheeling is as bad as on rough roads. A view of a series of cast poplar fibre blocks is shown in Fig. II. A are the blocks and B is the foundation. The blocks stand rigid and square. As there has not been sufficient time to test them no definite statement of their durability can be given. As it is proposed to mold the blocks in a novel form it would seem that firmness of foundation should result. Fig. III. indicates a sectional view of the peculiar shaped blocks. A is the block system and B the foundation beneath. The precise shape of the blocks, showing how they interlock, is illustrated in Fig. IV., which is a surface view.

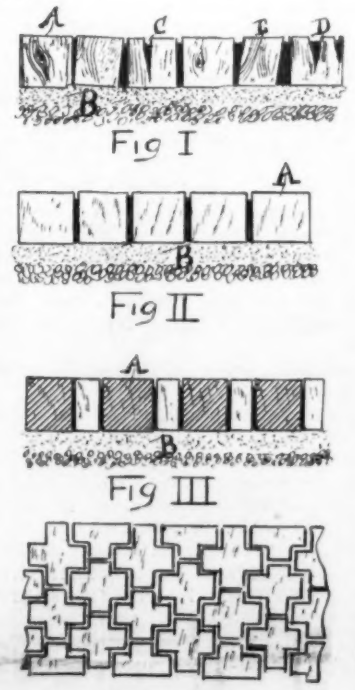


Fig I

Fig II

Fig III

Fig IV

Fibre Street Paving.

In making these street blocks a strong, fibrous pulp is desirable, and it should be well beaten after it leaves the digester. Several grades have been tried, but poplar wood fibre is best. The prepared pulp is formed into the blocks by the use of molds. The blocks are submitted to hydraulic pressure before they are thoroughly dry This pressure consolidates the fibre and makes the blocks as firm and hard as metal, yet sufficiently elastic to make wheeling easy. The blocks are cast square, diamond shaped, triangular, oblong and in various other shapes. Where the form is such that the blocks can be dovetailed the best results follow. A common foundation of stone and sand is used for the blocks. The durability is supposed to be twice that of wooden blocks, yet the cost is no more. Easy wheeling over the fibre pavement is a feature.

Wood Pulp, Soda AND Sulphite,
IMPORTED BY
G. RAU, TIMES BUILDING, New York.
SOLE AGENT FOR THE U. S. AND CANADA:
ROZÈS AINÉ & FRÈRES, Agen,
Well-known Packers of Linens and Cottons.
RA TRADE MARK

"RUDDER" BRAND
SODA-ASH BLEACHING POWDER SALT-CAKE
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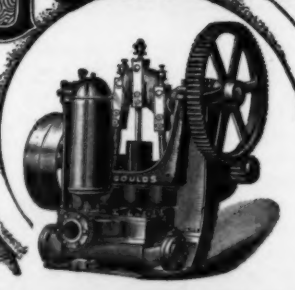
BRAND
CHEMICALS
PURE AMMONIA-SODA ALKALI
AND
HIGH STRENGTH BLEACHING POWDER
ARE THE BEST FOR PAPER MAKERS' USE.
Consignments regularly received at all Ports.
AMERICAN OFFICE: 66 BROAD STREET, NEW YORK.
BOWMAN, THOMPSON & CO., Ltd., NORTHWICH, ENGLAND.

GOULDS PUMPS Are Better

The Power Boiler Feed Pump
Is acknowledged the most economical type Boiler Feeder in use.
Goulds Triplex Power Pump is the most efficient of this class.
Send for new Catalogue. "Efficient Power Pumps and Applications."
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Manufacturers of PUMPS and HYDRAULIC MACHINERY,
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Or Nearest Branch Agency—THE GOULD CO., 22 and 24 North Canal St., Chicago, Ill.
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Organized July 1, 1889. Capital, $6,000,000.
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Lined Straw Boards, Combination Boards, Binders' Boards,
"LIGNISTRA." Friction Boards, Building Board, Plain Board, Tarred Board, Waterproof Boards, Barrel Layers, Peach Baskets, Egg Cases and Fillers.
General Office, PULLMAN BUILDING, CHICAGO.
AGENCIES: New York, 102, 104, 106 Wooster St. Boston, 46 Federal St.
Philadelphia, 121-127 N. Fourth St. Cincinnati, 101-103 Walnut St.
Chicago, 152-153 Michigan Ave.

EAGLE BRAND THE BEST
NO TAR. ROOFING NO TAR.
It is superior to any other Roofing and unequaled for House, Barn, Factory or Outbuildings; it costs half the price of shingles, tin or iron; it is ready for use and easily applied by anyone: it is the best roofing in the market in durability. Send for estimate and state size of roof.
RUBBER PAINT.
The best known Paint in the world for Tin, Iron or Shingle Roofs, Fences, sides of Barns and Outbuildings; it costs only 60 cents per gallon in barrel lots, or $4.50 for a 5-gallon tub. Color, dark red. It will stop leaks in tin or iron roofs that will last for years; it is guaranteed not to peel, crack, scale nor wash off and it's fireproof against sparks. TRY IT.
SHEATHING PAPER.—900 square feet, $3.00; keeps buildings cool in summer, warm in winter.
EXCELSIOR PAINT AND ROOFING CO., 155 DUANE STREET, NEW YORK N. Y.

TRADE MARK
AJAX ANTI-ACID METAL,
FOR THE RESISTANCE OF ACIDS AND ALKALIES.
ESPECIALLY ADAPTED FOR
Digesters, Sulphite Machinery, &c., &c. We sell the Metal in INGOTS, furnish CASTINGS, any size as per patterns, and COCKS, VALVES and FITTINGS of every description.
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WE INVITE CORRESPONDENCE.

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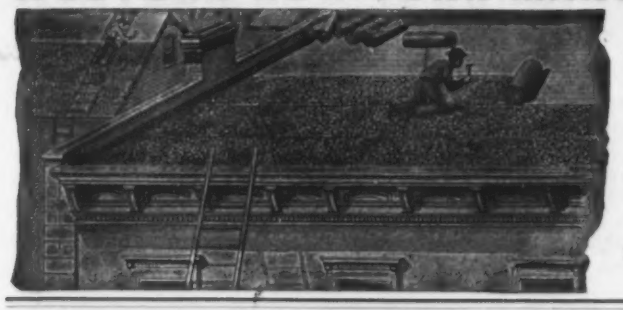
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—FROM—
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FIREPROOF. PLIABLE AND DURABLE.
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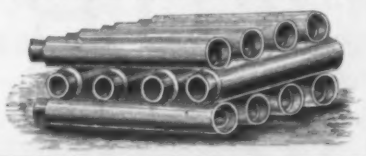
Made to stand any test from 20 to 160 lbs. per square inch.


AMERICAN
STAVE & COOPERAGE CO.
Manufacturers of Cedar, Cypress, Pine or Oak
Round and Square Tanks
OF ANY SHAPE OR CAPACITY.
—OFFICES:—
Broad and Beaver Sts., NEW YORK. 160 State St., BOSTON.
Illustrated Catalogue upon application.

ALUM!
THE MERRIMAC POROUS ALUM is unsurpassed for purity and good results.
All other grades of Alum for paper makers' use and for filtering purposes. Address
MERRIMAC CHEMICAL CO., 13 Pearl Street, Boston.

Imports and Exports.

IMPORTS AT NEW YORK.

FOR THE WEEK ENDED SEPTEMBER 7, 1894.

An. Colors..	215	$11,036	Paper.....	594	$25,911
Alum.....	—	—	Steel Pens...	1	1
Alum's Cake	—	—	Stationery...	10	915
Bl. Powders	367	5,985	Slate Pencils	10	213
Soda Ash...	3,049	8,354	Clay.....	—	1,161
Soda, Caus.	157	1,861	J'te B'ts, &c.	—	—
Soda, Sal....	80	870	P. Hangings	15	695
Soda, Hypo.	14	198	P'p'r Stock..	641	4,427
Ultramarine	142	2,897	Terra Alba..	450	1,461
Books.....	361	44,088	Waste.....	—	—
Newspapers.	291	9,310	Wood Pulp..	660	4,543
Engravings.	103	7,864			
Ink.....	10	265			
Lead Pencils	18	5,284	Totals.....7,188		137,337

Imports General Merchandise for the week ended September 7, 1894.....$4,377,305

IMPORTS OF PAPER STOCK AT NEW YORK.

FROM JANUARY 1 TO SEPTEMBER 13, 1894.

Whence Imported.	*Rags.*	*Old Papers.*	*Chemical Fibre.*	*Ground Wood.*	*Manilla Stock.*
	Bales.	Bales.	Tons.	Tons.	Bales.
Alexandria...	1,249	....	....	....	....
Antwerp.....	892	275	698	....	11,080
Aspinwall	90	....	....	....	....
Bordeaux.....	684	....	....	....	....
Bremen	672	25	6	....	6,034
Bristol.....	....	....	....	....	3,651
Buenos Ayres.	157	....	...	....	....
Calcutta.....	....	....	....	....	2,797
Cent. America	60	....	....	....	....
Christiania....	....	....	586	....	749
Copenhagen..	353	....	1,197	....	1,369
Dublin.....	....	186	....	....	....
Dundee.....	....	....	....	....	706
Dunedin.....	....	....	....	....	183
Fiume.....	....	....	90	....	....
Geestemunde.	252	....	....	....	1,309
Genoa.....	....	....	...	....	4,350
Glasgow.....	400	77	18	....	369
Gothenburg ..	91	....	107	....	....
Hamburg.....	1,855	276	490	....	3,265
Hamilton.....	....	....	....	....	42
Hiogo.....	9,001	....	....	....	....
Hong Kong...	43	....	....	....	....
Hull.....*a*	2,719	185	987	....	13,567
Kobe.....	34,395	....	....	....	....
Leghorn.....	2,219	....	....	....	....
Leith.....	....	159	....	....	138
Liverpool.....	1,075	899	....	....	21,365
London.....	4,313	1,559	20	....	9,518
Marseilles	466	....	....	....	486
Nassau	48	....	....	....	15
Newcastle	....	73	....	....	3,360
Rio.....	26	....	....	....	..
Rotterdam....	1,744	119	717	....	9,089
Southampton.	....	....	....	....	160
Stettin.....	3,905	....	747	....	8,891
Trieste.....	....	....	49	....	....

a. Including 347 bales cotton waste.

NEW YORK IMPORTS.

FROM SEPTEMBER 5 TO SEPTEMBER 12, 1894.

Paper Stock.

Train, Smith & Co., Sorrento, Antwerp, 185 bs. bagging.
James Pirnie, by same, 354 bs. bagging.
Lewy Brothers, by same, 107 bs. manillas.
Train, Smith & Co., Mohican, Bristol, 162 bs. manillas.
G. W. Millar & Co., Croft, Dundee, 48 bs. bagging.
Lewy Brothers, Persia, Hamburg, 98 bs. rags.
Lewy Brothers, Wieland, Hamburg, 40 bs. rags.
Lewy Brothers, Buffalo, Hull, 170 bs. rags.
James Pirnie, by same, 189 bs. bagging.
G. Rau, by same, 20 tons chemical fibre.
James Pirnie, Bovic, Liverpool, 67 bs. manillas.
Darmstadt & Scott, by same, 63 bs. bagging.
J. Libmann & Co., by same, 45 bs. rags.
Train, Smith & Co., Nomadic, Liverpool, 128 bs. manillas.
Train, Smith & Co., France, London, 131 bs. bagging.
G. Rau, by same, 68 bs. rags.
J. Libmann & Co., by same, 5 bs. rags.
James Pirnie, Massachusetts, London, 25 bs. papers.
F. Bertuch & Co., Veendam, Rotterdam, 20 tons chemical fibre.
Train, Smith & Co., Edam, Rotterdam, 714 bs. rags.
R. Helwig, Spaarndam, Rotterdam, 100 tons chemical fibre.
Lewy Brothers, Fidelio, Stettin, 232 bs. rags.

Paper.

G. Gennert, Aurania, Liverpool, 2 cs.
A. Sartorius & Co., Germanic, Liverpool, 3 cs.
Dingelstedt & Co., Persia, Hamburg, 21 cs.
John Munroe & Co., California, Stettin, 58 bs.
John Hunter, Buffalo, Hull, 7 cs.
Marcus Ward & Co., by same, 3 cs.
Chas. Scherer, Bovic, Liverpool, 19 cs.
L. De Jonge & Co., Spaarndam, Rotterdam, 31 cs.
E. & H. T. Anthony & Co., by same, 9 cs.
Henry Lindenmeyr & Sons, by same, 106 bs.
Neuss, Hesslein & Co., by same, 33 cs.
American Tobacco Company, La Bourgogne, Havre, 25 cs.
E. Kimpton, Massachusetts, London, 4 cs.
Henry Bainbridge & Co., by same, 4 cs.
Favor, Ruhl & Co., Etruria, Liverpool, 11 cs.
Wells, Fargo & Co., Berlin, London, 1 cs.

BOSTON IMPORTS.

FROM SEPTEMBER 6 TO SEPTEMBER 12, 1894, INCLUSIVE.

Paper, &c.

Wm. Guild & Co., Catalonia, Liverpool, 5 bs. periodicals.
Frost & Adams, by same, 3 cs. drawing paper.
W. A. Nosworthy, by same, 10 cs. paper.
Gregory & Brown, by same, 1 cs. paper hangings.
Dennison Manufacturing Company, by same, 47 pkgs. tissue paper.
Carter, Rice & Co., Buffalo, Hull, 1 cs. paper.

Paper Stock.

Train, Smith & Co., Borderer, London, 277 bs. manillas.
True & McClelland, by same, 4 bs., 55 coils manillas.
Horace Dutton & Co., by same, 303 coils manillas, 62 bs. waste paper.
Wheelwright Paper Company, by same, 88 bs. waste paper.
Train, Smith & Co., Scandinavian, Glasgow, 170 bs. waste paper.
True & McClelland, by same, 144 bs. waste paper.
Horace Dutton & Co., by same, 19 bs. rags, 26 bs. waste paper.
Train, Smith & Co., Buffalo, Hull, 70 bs. rags.
F. Soloman & Co., by same, 100 bs. rags.
Perkins, Goodwin & Co., by same, 67 bs. manillas.
Train, Smith & Co., Otranto, Antwerp, 175 bs. rags, 355 bs. manillas, 237 bs. flax waste.
Castle & Gottheil, by same, 125 bs. rags.
Horace Dutton & Co., by same, 408 bs flax waste, 338 bs. rags.
C. A. Cheney, by same, 140 bs. manillas.
F. W. Corne, by same, 22 bs. rags.
True & McClelland, Kansas, Liverpool, 18 bs. rags.
S. D. Warren & Co., British Empire, London, 406 bs. rags.
C. A. Cheney, Philadelphian, Liverpool, 264 bs. rags.

Sizing.

C. A. Cheney, Philadelphian, Liverpool, 159 bags.
C. A. Cheney, Otranto, Antwerp, 398 bags.

Wood Fibre.

Fred. Bertuch & Co., Buffalo, Hull, 650 bs.
Castle & Gottheil, by same, 104 bs.

Bleaching Powder.

J. L. & D. S. Riker, Kansas, Liverpool, 174 cks.
J. L. & D. S. Riker, Philadelphian, Liverpool, 55 cks.
Order, by same, 29 cks.
Wing & Evans, Buffalo, Hull, 86 cks.
Mason, Chapin & Co., Otranto, Antwerp, 52 ks.

Caustic Soda.

J. L. & D. S. Riker, Kansas, Liverpool, 40 drums.

Soda Ash.

Warren & Co., Kansas, Liverpool, 35 cks.
Wing & Evans, Catalonia, Liverpool, 112 cks., 1,300 bags.
J. L. & D. S. Riker, Philadelphian, Liverpool, 400 bags.
Wing & Evans, by same, 14 cks., 200 bags.
A. Klipstein, by same, 26 cks.
John D. Lewis, by same, 120 bags.

Soda Crystals.

Warren & Co., Kansas, Liverpool, 280 bbls.

Crude Sulphur.

Linder & Meyer, Philadelphian, Liverpool, 2,008 bags.

Pulp Stones.

Lombard & Co., Buffalo, Hull, 18 stones.

PHILADELPHIA IMPORTS.

FOR THE WEEK ENDED SEPTEMBER 8, 1894.

Soda Ash.

Brown Brothers & Co., Southwark, Liverpool, 86 cks.

EXPORTS of Paper, &c., from New York for the Week Ended September 11, 1894.

BOOKS, cases, to London, 18; British Australasia, 4; Venezuela, 2; British West Indies, 6; Antwerp, 3; Hamburg, 6; Dutch West Indies, 4; Brazil, 10; Bremen, 6; Central America, 3; Cuba, 1; Genoa, 1; Glasgow, 5; Havre, 3; Leipsic, 5; Liverpool, 26; Mexico, 1; Messina, 1; Peru, 1; Newfoundland, 11; Nova Scotia, 2; Rotterdam, 2.

PAPER, to Cuba, 922 pkgs.; British West Indies, 416 pkgs., 30 rms.; London, 380 pkgs.; Central America, 16 pkgs.; British Australasia, 453 cs.; Colombia, 27 pkgs.; Liverpool, 97 cs.; Venezuela, 8 pkgs.; Hayti, 3 pkgs.; Dutch West Indies, 10 pkgs.; Dutch Guiana, 10 cs.; Glasgow, 102 pkgs.; Porto Rico, 1 cs.; Mexico, 36 pkgs.; Southampton, 1 cs.; Antwerp, 2 cs.; Bristol, 7 pkgs.; Brazil, 47 pkgs.; British Honduras, 28 pkgs.; Berlin, 5 pkgs.; China, 1 cs.; New Zealand, 24 pkgs.; Dutch East Indies, 1 cs.; Danish West Indies, 1 pkg.; Havre, 38 pkgs.; Messina, 3 pkgs.; Nova Scotia, 10 pkgs.

STATIONERY, cases, to British West Indies, 10; Cuba, 19; British Australasia, 1; Colombia, 7; Central America, 45; Liverpool, 4; Venezuela, 8; Hayti, 3; London, 35; Mexico, 9; Salonica, 5; Antwerp, 1; Brazil, 3; British East Indies, 1; Ecuador, 2; Hamburg, 3; Newfoundland, 37; Port Said, 1; Smyrna, 5; San Domingo, 3.

WALL PAPER, cases, to Newfoundland, 2.

STRAWBOARD, cases, to Hull, 10.

AGGREGATES AND VALUES.

Paper, reams.....	30	$16
Paper, pkgs.....	2,502	14,499
Paper, cases.....	134	2,566
Books, cases.....	102	7,028
Stationery, cases.....	199	7,240
Rosin, bbls.....	8,751	22,328
Totals.....	11,778	$53,677

Exports General Merchandise for the week ended September 11, 1894..... $6,100,901

CHRISTIANA MACHINE CO.,
Christiana, Pa.,
MANUFACTURERS OF
THE BALANCED GATE
Turbine Wheel.

Suitable for Light or Heavy Service.
Globe Outer-Cases and Special Wrought or Cast Iron Flumes,
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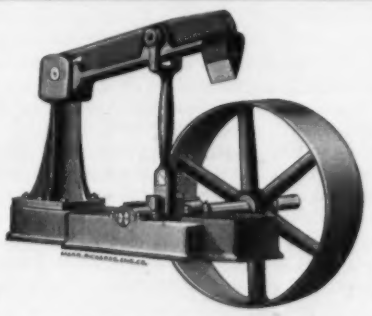

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NEW YORK: SATURDAY, SEPTEMBER 15, 1894.

SPECIAL NOTICE.

THE CHEMISTRY OF PAPER MAKING is now on the market; octavo, 532 pages, cloth, $5.00, postpaid. Every reader of THE PAPER TRADE JOURNAL interested in the subject could not make a better investment of the money. Particulars in another column.

In press: HOFMANN'S TREATISE ON PAPER MAKING; to be published in twenty parts of about eighty pages each, at intervals of not less than sixty days; price *one dollar* cash in advance for each part, postpaid. Number One will appear in November next. Subscribers should not delay in placing orders.

The American Dictionary of Printing and Bookmaking will be delivered to any person sending twelve dollars for it. This great work, royal octavo, 600 pages, half-bound, is a mine of information on every subject comprehended by its title.

HOWARD LOCKWOOD & CO.

SEPT. 14, 1894.

THERE seems to be some dissent from the action of Congress in connection with the tariff, and the feeling of the dissidents does not appear to trend in the direction of opening more widely the door for foreign producers to the great confusion of home industries.

THE improvement in beating engines illustrated and described on the first page of this issue of THE PAPER TRADE JOURNAL is intended to effect such movement in the position of the stock undergoing treatment that evenness in beating will be assured. The change in the engine consists in shortening the backfall, the midfeather being reduced in length to conform thereto, and then in modifying the form of the bottom of the tub at the rear of the backfall in such a manner that, operating in conjunction with an overhang of the latter, the stock turns over and changes position as it passes further on its travel around the tub.

DESPITE the forebodings which some people express, we desire to declare our belief that now that the ills of legislation undigested have been overcome we shall see recovery in trade. While the year has not closed and the balance sheets are yet to tell the story which shall bring disappointment or hopefulness, there is certainly more business movement and confidence, slow in birth, may soon be begotten. If the dangers which yet lurk in the legislative halls at Washington, and which may develop at the coming short session of Congress can be overborne, business activity will move readily and surely develop. It is evident that the people are more than ready for the change, but realize that conservative methods and counsel must prevail, lest affairs become worse. We hope for the best and everyone should help toward that encouragement so much needed.

THERE is evidently quite a difference of opinion in regard to the crops. The Government Agricultural Bureau appears to have put altogether too low an estimate on both the corn and wheat yield. The exchanges are of course using the unfavorable reports to bull the market, yet there seems a prospect, from the turn-out of the threshing machines up to date, that the result will be very nearly, if not quite up to the best years. Cotton is also a good crop, and corn, which has been flying upward in price away above wheat in anticipation of a short crop, seems likely to turn out fairly well after all. Reports from Europe indicate short crops in some sections hitherto depended on, and the troubles between China and Japan also indicate an enlarged market for our staples. The agricultural products of the country occupy such an important place in our foreign trade that favorable signs affecting them must have an encouraging and healthy influence on trade in general.

Overproduction is a distinct evil. How to meet it and overcome it is the problem of the hour. It is not to be thought of that half of our time must be spent in reducing the output of our mills by shutting down, locking out &c., thus keeping both employer and employed on the tenter hooks of anxiety and cheapening products below legitimate cost. The obvious way is to organize a determined movement on the markets of the world. There is no surer way of keeping mills and plants running the year round. There may be some hardships and losses in the initiative of such a movement, but once started it will grow of itself. There are countries where we can gain a foothold by being "a little previous," so to speak; by finding out what the people want, and sending it to them. Usually the first comers capture the fancy of people, who become averse to changing; if we are not first in point of time we can prove by the character of our wares that we are first in the order of manufactures.

PRINTERS in the United Kingdom seem about to embark in a contention with their Government similar to that which shook the craft in this country from cutwater to sternpost. The Government printing offices at Washington are now unionized throughout, which is undoubtedly the reason why the recent discharge of 400 of the hands did not make even a ripple on the fraternal waters of the union. It was all right; they will all be taken back when Congress again convenes. The English Government, however, maintains a non-union office, and, worse than anything else, cuts union wages. Just now the demands of the craft in London are moderate, being no harsher than a request, upon belief and conviction, for the payment of union, or at least *fair* wages, to the printers in Government employ. It is claimed, with an amount of reason which will appeal to sensible people, that as long as functionaries of all kinds are rewarded with comfortable, not to say extravagant, salaries, the men who do the work should get living wages at least. Verily, these be parlous times for J. B.

AN interesting phase of the clothing strike in New York relates to the contract system as developed in that trade. Formerly it was the practice of all clothing concerns to maintain shops of their own and employ labor themselves. For many years, however, this has not been done. Just how the "sweating" system was introduced and became general cannot be entered into here; but the fact is that these "middle men" have had for a long time almost the entire control of the manufacturing department in the clothing trade. The results of this complete separation of the capitalistic and producing ends of the trade have been a condition of things which shames civilization and discourages hope. The oppression suffered by the workers appears to have been an inevitable part of the system itself, which in its entirety is in the hands of men not citizens of this country, and not in any way a real part of its body politic, but an excrescence alien and unassimilative. The system as laid bare by the strike seems to be a revelation to the clothing manufacturers quite as much as to the others—a state of affairs highly discreditable, by the way, to a class of men with intelligence and energy enough to conduct large and important enterprises. They appear to be somewhat ashamed of it and are considering a return to the older and better system of maintaining shops themselves. The actual cost of the work put into clothing is small, thanks to modern inventions, and with the abolition of the middle man garments could be made cheaper, better wages could be paid and profits would be increased without injury to anyone concerned. We have noted this strike because it is an object lesson worthy of the attention of every man of business.

Watermarks.

BY DANDY.

Reciprocity, which by the new tariff law has been knocked out, seems to have been a good thing. At least that is the way a paper merchant of this city looks at it, and his impression was confirmed this week. He has been doing some trade with Cuba, and his customer at Havana sent him the following letter, which came to hand a few days ago:

"Reciprocity having come to an end by the new sugar duty, our Custom House means to put on differential duties (besides taking away discounts on duty conceded by treaty) on American goods. Till your Government shows them that they must treat us on an equal footing with other nations at least, there is no prospect of any extensive business."

Looks from that as though recent legislation in this country was bearing its legitimate fruit, and that as a consequence the other fellow was in a fair way to get the business and the profit.

The income tax question is troubling some people in the paper trade and they are studying up its provisions. Some of them are arguing that as Congress cannot pass retroactive measures, the Government cannot collect a tax on the income of this year, derived and probably spent before the passage of the act.

That may be so, gentlemen, but it is probable that you will have to step up to the collector's office and settle.

The paper trade swimming club will have its last bath at Manhattan this season to-morrow morning, and it is expected that all hands will report for duty on the regular "swim train," which will run as usual, and if the weather is warm will be supplemented by other trains.

A good deal of quiet work is being done in the interest of the American Paper Manufacturers' Association. New members have been added in goodly numbers, and plans are now being formulated which will probably result in carrying out several practical lines of work.

Speaking of the work which the association could do, a maker of news said: "There is one matter which the association ought to take up, and that is the freight classification of paper. That has never been changed, and it is entirely wrong. It is not classified relatively the same as other products, and is at a disadvantage. It is a matter which interests the whole trade, and I venture to say if the classification on paper was made on the same plan as that of other goods it would mean an annual saving of $150,000 to the news mills alone."

"That is simply one line on which the association could work. There are several others, all of them general enough to be of interest to every manufacturer in the country."

Trade Talks.

S. D. Beach, Seymour Paper Company, Seymour, Conn.—Business with us is very good, and in fact it has kept up very well all the year. Other than Sundays and holidays, we have only been shut down four days since the beginning of the year, and that was because it was necessary to make certain repairs. Water has been very low, but we have had some showers lately which have done a little good. I think we are going to have a steady trade through the fall.

C. M. Boswell, Albemarle Paper Manufacturing Company, Richmond, Va.—Business is good, and we are having a very steady call for our blotting paper. You see we devote all our time and attention to the manufacture of blotting paper, and we have to-day the largest establishment making blotting on the earth. We get THE PAPER TRADE JOURNAL regularly, and it is read very regularly. Our men enjoy it very much, and some of them read every line in it from beginning to end.

Changes, Removals and New Firms.

Nevada City, Cal., has a new weekly paper called *Tailings*.

W. H. Irwin, publisher of the *Standard*, Blyth, Ont., has sold out.

Eastland, Cal., has a new paper called the *Marion County Herald*.

W. K. Gregory, bookseller and stationer, Mayfield, Ky., has sold out.

Newport News, Va., has a new paper called the *Daily Commercial*.

C. H. Brenan & Son, printers, Chicago, Ill., have dissolved partnership.

Montreal, Que., has a new architectural journal called the Montreal *Builder*.

C. W. Cook, publisher, Sheldon, N. Dak., has been succeeded by John H. Burke.

M. L. Scott, printer, Spanish Fork, Utah, has been succeeded by Fred. M. Smith & Co.

John W. Hunn, printer, New Haven, Conn., has incorporated his printing business.

Martin Schaller, Ann Arbor, Mich., has opened a book, stationery and wall paper store.

Will C. Bailey, publisher of the *News*, Colton, Cal., has sold out to Mrs. G. E. McMullen.

Frederick Nelson, publisher of the *Miner*, Eureka, Utah, has been succeeded by C. L. Brown.

The Western Book and Stationery Company, Salt Lake City, Utah, has been incorporated.

Kennedy, Nev., has a new paper called the *New Era*. Its office is in one end of a quartz mill.

Grapeland, Cal., has a new paper with the euphonious and suggestive title *The Buzz Saw*.

Edwin L. Mott, publisher of the *Free Press*, Alvinston, Ont., has sold out to A. E. Cummer.

The New Agricultural Publishing Company, Indianapolis, Ind., has removed to Chicago, Ill.

Talpin & Mead, publishers, Minnesota Lake, Minn., have been succeeded by Mead & McPherson.

The Eldora Printing Company, Eldora, Ia., has been succeeded by the *Herald* Printing Company.

Atto Bengston and B. Suneson, New Britain, Conn., will open a stationery and book store in that town.

Arbuthnot Brothers & Co., Toronto, Ont., have started a printing business at 8 and 10 Lombard street, that city.

Ottawa, Ont., has a new semi-monthly journal called *The Triple Links*, published in the interest of the order of Odd Fellows.

The daily edition of the *Mail*, Sprague, Wash., will be discontinued, and the weekly edition will be conducted as a Populist organ.

The Spokane *Review*, Spokane, Wash., has been succeeded by the *Spokesman-Review*, with W. H. Cowles as editor and proprietor.

The Palmerston (Ont.) *Telegraph* has been sold to G. H. Mooney, Wingham, Ont., who will remove it to Ripley, same province.

L. S. Hunt, publisher of the *Post-Intelligencer*, Seattle, Wash., has sold out to Fred Grant, Geo. H. Heilbron and James D. Hoge, Jr.

Toronto, Ont., has a new illustrated weekly political journal called *The Young Politician*, published by the Canada *Nation* Publishing Company.

Robert Clarke & Co., Cincinnati, Ohio, stationers, &c., have been succeeded by the Robert Clarke Company, incorporated. The personnel of the firm is unchanged.

August H. Leibert, Bethlehem, Pa., has opened a book and stationery store. Mr. Leibert was for some time with the Moravian Publishing Concern, of Bethlehem.

The National Fireworks Company, of Boston and Newton, Mass., has assigned to Chas. A. West and Frank E. Dickerman, of Boston. Liabilities, $35,000; nominal assets, $16,000.

The *Florida Monthly* Publishing Company, Tampa, Fla., has been incorporated to publish a monthly journal by John T. Hearn, Peter O. Knight, C. Durant and others. Capital stock, $10,000.

The Dodge Stationery Company, San Francisco, Cal., has been incorporated. The directors are Isabell Meyers, A. M. Robertson, George H. Mayers and Edward Kentfield, all of San Francisco. Capital stock, $20,000.

The *Sun* Publishing Company, Portland, Ore, has been incorporated by John O'Brien, George Pope, Benton Killen, W. F. Osborn and E. D. McKee to publish daily, weekly and Sunday newspapers. Capital stock, $35,000.

James Thomson, paper manufacturer, Newburgh, Ont., has sold his business to George B. and James M. Thomson, who will continue it under the style of the Thomson Paper Company, and will liquidate the accounts of the old firm.

Notice is given of the application for incorporation of "La Compagnie d'Imprimerie de Canada," for the purpose of publishing *La Canada* in Ottawa, Ont., and other papers in Montreal and Quebec, the main offices to be at Ottawa. Capital stock, $25,000.

A. W. Berry, Los Angeles, Cal., who recently purchased the stock of E. D. Bronson & Co., of that city, has opened a book, stationery and news store under the style of the A. W. Berry Stationery Company. L. Behymer, literary editor of the Los Angeles *Daily Herald*, will manage the book department.

The incorporation of the Diamond Mills Paper Company, at Newark, N. J., was reported last week. The incorporators are George W. Thompson, Charles G. Van Gilder and Henry K. Reynolds, and the capital stock of the company is fixed at $300,000.

The Wendler Machine Company, of Carthage, N. Y., has been incorporated to manufacture pulp, paper and other machinery, and iron and wood work generally. Capital, $150,000, divided into 1,500 shares, and directors, Alex. Wendler, of Carthage; John G. Jones, of Ticonderoga; Chas. H. Remington, of Watertown, and Curt Nicolai, of New York. Mr. Wendler subscribes for 1,300 shares of the capital stock. This company succeeds Wendler & Co.

Failures.

The estate of S. M. Williams, stationer, Minneapolis, Minn., has paid a first and final dividend of 9½ per cent.

The office of the *Tribune*, Great Falls, Mon., is in the hands of the sheriff to foreclose a mortgage of $13,500 held by a local bank.

The creditors of J. S. Crew & Co., stationers, Lawrence, Kan., who failed some time ago, have received a dividend of 19 6-10 per cent.

The sheriff has sold out the stock of the Edward Boddy Company, dealer in cards and paper, at No. 9 New Chambers street, New York, realizing about $1,100.

The sheriff has levied for $1,244 against Frank A. C. Dahlhaus, Abraham C. Van Rees, Cornelius A. Van Rees and Peter J. Van Rees, printers, who carry on the Nassau Press Rooms, at Nos. 162 to 166 Leonard street, New York, in favor of the Campbell Printing Press and Manufacturing Company. When the sheriff went to make a levy he was informed that the plant was covered by a chattel mortgage of $15,000, and he levied on the equity above that amount. The business was started in June, 1892.

V. L. Thompson, stationer and bookseller, Anniston, Ala., in January, 1889, transferred all of his property to his mother by means of a bill of sale, the property being valued at over $10,000. He then made an assignment, leaving nothing for his creditors, among whom were A. S. Barnes & Co., D. Appleton & Co., the J. B. Lippincott Company, Boorum & Pease Company, E. I. Horsman, T. Y. Crowell & Co., the National Blank Book Company, the Keuffel & Esser Company, C. T. Dillingham, the Berlin & Jones Envelope Company, Porter & Coates, Dodd, Mead & Co., &c. The creditors, through the Stationers' Board of Trade, filed a creditors' bill, claiming that the transfer was fraudulent, and asked for an injunction. The case was contested and litigation has been going on ever since. Two assessments were made on the creditors to carry on the proceedings, which have now come to a determination, the highest court in Alabama having just decided that the transfer was fraudulent and that all of the assets must be turned over to the creditors.

Mortgages, Etc.

[In the appended list R. signifies a renewal of a pre-existing mortgage; B. S., bill of sale; T. D., trust deed, and Real, a mortgage on real estate.]

EASTERN STATES.

Mortgagor.	*Amount.*
Charles P. Holden, Boston, Mass.	$750
H. F. Glidden, Lowell, Mass.	400
Geo. F. Whipple (Whipple Manufacturing Company), Providence, R. I.	1,500

MIDDLE STATES.

The *Times* Printing and Publishing Company, Rochester, N. Y.	20,000

WESTERN STATES.

Jos. Honzerovsky, Cedar Rapids, Ia.	400
J. M Jones, Des Moines, Ia.	600
Frank Leake and W. Melcher, Mount Pleasant, Ia.	400
G. F. Trott, Junction City, Kan. (Real)	2,000
H. V. Chase, Olathe, Kan. (Real)	204
S. A. Langum, Preston, Minn. (Real)	1,300
A. H. Hammond (*Journal*), Fairbury, Neb. (B. S.)	1,000
Jefferson County Publishing Company, Fairbury, Neb.	800
Slater, Dillman & Heindle, Dayton, Ohio	600
Tullidge & Co., Salt Lake City, Utah (R.)	650
Otto Rydman, Salt Lake City, Utah (T. D.)	587
Rands & Du Bois (*Independent*), Vancouver, Wash.	396

SOUTHERN STATES.

Myers & Bargdoll, Chillicothe, Mo.	500
Ed. H. Parks, Moberly, Mo.	700
A. C. Baldwin, Sedalia, Mo.	3,000
Frederick E. Schoenberg, St. Louis, Mo.	1,500

DISTRICT OF COLUMBIA.

F. A. Cogswell (*The Courant*), Washington (B. S.)	1,000

CANADA

H. T. Stevens, H. T. Stevens & Co., Moncton, N. B. (B. S.)	1,000

LIENS DISCHARGED.

M. E. Coon, et al., San Francisco, Cal.	1,900
J. B. Brown (*Gazette*), Galena, Ill. (Real)	2,000
Otto Rydman, Salt Lake City, Utah (Real)	244

Fires.

J. J. Cave, publisher of the *Express*, Beaverton, Ont., has been burned out. A new plant has been purchased.

H. J. Hanson & Co., publishers, Dows, Ia., have had a loss of $1,000 by fire; insured for $500.

Personals.

W. E. Conrow, of Conrow Brothers, and family are now at Lake Placid.

John P. Melady, of the firm of Kerwin & Melady, paper dealers, St. Paul, Minn., was married on September 5 to Mary Prendergast.

The many friends of H. R. Blethen, representing the Scranton Supply and Machinery Company, will be pained to learn of the death of his mother at Searsport, N. Y., on August 29.

Among the passengers who were on board the Lucania when she made her record breaking eastward trip were H. C. Hulbert, of H. C. Hulbert & Co., and Mrs. Hulbert.

Invitations are out for the wedding of Edwin Lincoln Stanwood, treasurer of the Rumford Falls Paper Company, to Margaret Churchill, which will be celebrated at St. Luke's Cathedral, Portland, Me., on October 3, at 8:30 P. M.

Accidents.

John E. Steers, foreman in the machine shop at the fibre mill of the Hudson River Water Power and Paper Company, Mechanicsville, N. Y., lost two fingers from his right hand in a lathe on September 10.

On September 3 Hollis Braman, aged sixteen years, while "jacking" logs at the Schroon River Pulp Company's mill, at Warrensburg, N. Y., in an attempt to adjust a log on the tramway, slipped on the endless chain used for hauling the logs into the mill. His right foot was crushed to pulp and the left leg below the knee lacerated. Large pieces of flesh were torn from the leg. It became necessary to amputate the right leg about 3 inches above the ankle.

In Town.

S. D. Beach, Seymour, Conn.; A. D. Remington, Watertown, N. Y.; C. M. Boswell, Richmond, Va.; A. W. Eaton, Lee, Mass.; A. N. Burbank and H. M. Whitney, Boston, Mass.; Mr. Gage, Pepperell, Mass.; W. M. Crane, Dalton, Mass.

General Notes.

The *Northwest Catholic* Publishing Company, Sioux City, Ia., has asked for a receiver.

W. H. Hill, bookseller and stationer, Chicago, Ill., has confessed judgment for over $10,000.

Bids for furnishing the public schools of Savannah, Ga., with stationery supplies will be opened by the committee on supplies on September 20. Address John R. F. Tattnall, chairman.

The United States Treasury has decided that cigarette paper is not to be classed with tissue paper, the latter being subject to a lower duty than the paper used for cigarettes, although when used for other purposes it may be entered at the same rate as other tissues.

The suit which Perkins, Goodwin & Co. began some time ago against A. Wertheim & Co. and George P. Folts, of the Remington Paper Company, who was bondsman for $4,000 for the firm, on matters growing out of the failure of A. Wertheim & Co., of New York, has been settled by A. Wertheim & Co.

Capitalists of Troy, N. Y., are about to begin the manufacture of coal dust into blocks for use as fuel. The plant is to be located in West Troy. A method has been perfected for transforming the dust into blocks of egg-like form for convenience of packing and handling. It is claimed the new fuel can be sold for $1.50 a ton.

A dispatch from Washington announces that the custom of publishing in newspapers the list of unclaimed letters at post offices will be abandoned, and the lists will be bulletined in the post office buildings hereafter. Congress failed to make a sufficient appropriation to carry on the old practice. The expense of publishing the list last year was $19,000.

Timber dues on pulp wood are to be raised by the Quebec Crown Lands Department, which has given the following notice in the official Gazette: "Whereas, the present rate of dues chargeable on spruce logs for paper pulp is 25c. (twenty-five cents) per cord of 128 cubic feet, and whereas, it is advisable to raise it, while allowing a reduction when pulp is to be manufactured in this province, it is ordered that the rate of dues on spruce logs for paper pulp be fixed at forty cents (40c.) per cord of 120 cubic feet, but that a reduction of fifteen cents (15c.) per cord be allowed when the pulp wood is to be manufactured in this province." The New Brunswick Government is also putting restrictions on cutting lumber by the following regulations, which apply to all timber logs cut on crown land: "No spruce or pine trees shall be cut by any licensee, under any license, not even for piling, which will not make a log at least 18 feet long and 10 inches at the small, and if any such shall be cut the lumber shall be liable to double stumpage and the license be forfeited."

Market Review.

OFFICE OF THE PAPER TRADE JOURNAL, FRIDAY, September 14, 1894.

THE MONEY MARKET.—The stock market was more active, but the most of the moving shares closed at lower figures. Call loans continued at 1 per cent. at the Stock Exchange and 1½@2 per cent. at banks and trust companies, according to the character of the collateral offered. Wall Street is taking slightly greater interest in the time loan market, evidently because it believes that call loaning rates may improve before long. Rates are quoted upon the following basis: 1½ per cent. for thirty, 2 per cent. for sixty, 2½ per cent. for ninety days, 3 per cent. for four, 3½ per cent. for five and 3½@4 per cent. for six months and longer dates. Commercial paper was moderately active, and the supply a little better. Rates are: 3@3½ per cent. for sixty to ninety day indorsed bills receivable; 3½@4 per cent. for four months' commission house names; 3½@4 per cent. for prime four months' and 4@4¼ per cent. for prime six months' single names, and 4½@5½ per cent. for good four to six months' single names. The market for foreign exchange was firm and dull owing to the decreased supply of bills of all kinds. Offerings were only slightly less than the demands of remitters, but were enough less to cause a small upward movement. Some covering was said to have been done by the short sellers of exchange of last July. Posted rates were $4.86 for sixty days and $4.87 for sight. Actual rates were $4.85@4.85½ for sixty days and $4.86@4.86½ for sight.

THE PAPER TRADE.—There continue to be complaints of low water, and these are especially loud from the East, where the streams have dried up to an unusual extent. There is reported, however, a slightly increased demand for goods, and some makers state that they are busy and are taking care of as many orders as they possibly can with water in the present condition. In the local market there are more inquiries, and goods are moving more freely.

JUTE BUTTS.—The market is quiet and unchanged.

WOOD PULP.—The market for Ground Wood is maintained at the position referred to last week, and $15 f. o. b. continues to be quoted, lower prices having been declined.

WOOD FIBRE.—The market is quiet. Domestic Soda is quoted at 2¼@3¼c. for Bleached. Domestic Sulphite is quoted at 1¾@2¾c., as to quality, for Unbleached, and 3¼c. for Bleached. Foreign grades are quoted as follows: Unbleached Pine, soda process, 2.60@2.75c.; Bleached, same process, 3½@3.90c.; Unbleached, sulphite process, 2.50@3.25c.; Bleached, do., 4@4½c.; Bleached Straw Pulp, 4@4½c. There were 140 tons of Chemical Fibre imported at this port this week, being 20 tons from Hull and 120 tons from Rotterdam.

FOREIGN RAGS AND PAPER STOCK.—The market is quiet, but there continues to be a good many inquiries without a large volume of resulting business. Japans continue to sell to dealers at 1½c. Imports at this port for the week aggregated 2,831 bales and 140 tons, being 1,372 bs. rags, 25 bs. papers, 140 tons chemical fibre and 1,434 bs. manillas. Ports of shipment and quantities are as follows: Antwerp, 646 bs. manillas; Bristol, 162 bs. manillas; Dundee, 48 bs. manillas; Hamburg, 138 bs. rags; Hull, 170 bs. rags, 20 tons chemical fibre, 189 bs. manillas; Liverpool, 45 bs. rags, 258 bs. manillas; London, 73 bs. rags, 25 bs. papers, 131 bs. manillas; Rotterdam, 714 bs. rags, 120 tons chemical fibre; Stettin, 232 bs. rags.

DOMESTIC RAGS.—Trade has been rather quiet in domestic rags this week, and, while prices are firm, buyers are not willing to meet the higher figures of last week. Quotations are: No. 1 whites, at 3¼c.; Soiled Whites at 2¼c., and 2's at 1.15c., all f. o. b. New York.

BAGGING, &c.—Prices for Bagging remain as they were last week, but business is very light, and for No. 1 Gunny there appears to be no inquiry at all, the nominal quotation being 1⅛@1.15c. Manilla imports for the week aggregated 1,434 bales, being 646 bs. from Antwerp, 162 bs. from Bristol, 48 bs. from Dundee, 189 bs. from Hull, 258 bs. from Liverpool, and 131 bs. from London.

OLD PAPERS.—The call for old papers is very moderate. We quote: No. 1 Hard White Shavings, 2½@2¾c.; No. 1 Soft White do., strictly free from wood, 2.15c.; Soft White do., ordinary, 1⅞@2c.; Old Ledgers, 2c.; Solid Printed Books, 1¼c.; Mixed Shavings, No. 1, 1@1½c.; Mixed Shavings, No. 2, ¾c.; Extra No. 1 Manillas, .90c.; No. 1 Manillas, ordinary, .75c.; No. 2 Manillas, .60c.; Light Book Stock, .60c.; Folded News, .35c.; Mixed Papers, .35c.; Commons, .25@.30c.; Straw Clippings, .45c.; Binders' do., .45c.

STRAW.—There is a plentiful supply and best grades are held fairly steady. We quote: Long Rye at 50@55c.; Short Rye at 40c.; Wheat at 40c.; Oat at 35@45c.

ROSINS.—The market is unsettled, and trade is almost at a standstill as a consequence. We quote: Common to Good Strained, $1.37½@1.42½; E, $1.60; F, $1.80 @1.85; G, $1.95; H, $2.15; I, $2.35@2.40; K, $2.57½@2.60; M, $2.70@2.75; N, $3; W G, $3.20@3.30.

CHEMICALS.—The volume of business in the market for paper makers' chemicals has not been large, but some of the lines have shown an improvement. Under date of August 28 J. P. Brunner & Co. speak of the Liverpool market as follows: "The expected revival in trade has not yet set in, so far as chemicals are concerned, and dullness is still the chief characteristic of the market. Soda Ash is very inactive for Leblanc makes, nominal spot quotations for which are about as follows: Caustic Ash, 48 per cent., £3 15s.@£4 per ton; 57 and 58 per cent., £4 10s.@4 15s. per ton net cash. Carb. Ash, 48 per cent., £3 5s.@3 15s. per ton; 58 per cent. £3 15s@4 per ton net cash. Ammonia Ash, 58 per cent., quiet at £3 10s. @3 12s. 6d. per ton net cash for tierces, and 5s. per ton less for bags. Soda Crystals are nominally quoted at £2 12s. 6d.@2 15s. per ton less 5 per cent., but tending downward. Caustic Soda very dull, quotations vary according to export market, and nominal spot ranges about as follows: Sixty per cent., £7 5s.@8 per ton; 70 per cent., £8 5s.@9 per ton net cash; 74 per cent., £9 5s.@10 per ton; 76 per cent., £10 5s.@11 per ton net cash. For parcels under 10 tons 5s. per ton extra is charged. Bleaching Powder is only in moderate request, while quotations for hardwood packages are unchanged, ranging from £7 10s.@8 per ton net cash, according to destination." Bleaching Powder is moving very slowly, so far as supplies for immediate use are concerned, although there has been a little more doing in shipments. Prices are unchanged. Contracts for Caustic Soda are in better demand. Alkali shows more life, and both for spot and for shipment there is a better call for goods. During the week there have been sales 25 cks. Bleach at 1⅞c.; 25 tons Soda Ash at 1¼c; Caustic Soda, 70 per cent., at 2.20@2¼c., and 74 per cent. at 2.20@2.30c.

CHINA CLAY.—There is nothing new in the market at the moment. Trade has revived somewhat, but is still far from good. A better condition is looked for, however, in the near future. The recent reduction in price acts as an aid to the limited demand for a long time in evidence.

TWINES.—Trade is fair. We quote: Sisal Hay Rope, 5@6c.; Sisal Lath Yarn, fine, 9¼c. and medium, 9c.; Jute Lines, 7½c.; Jute Ready, 7@7½c.; New Zealand Hay Rope, 6¼@7¼c.; New Zealand Lath Yarn, fine, 9¼c.; medium, 8¾c. Twines—Hemp, 4½ and 6 B Russia, 12c.; 4½ and 6 A American, 12c.; 4½ and 6 D Jute, 9½c.; 4½ and 6 L Jute, 9c.; Hemp Ball, 18 B C, 17c.; 18 C, 15c., Russian Hemp Hay Rope, 9c.

COAL.—Bituminous coal is being produced in large quantities at all points and there is no difficulty in securing supplies at prices which ought to command ready sales. Continued low water, which prevents river shipments out of the Monongahela and Kanawha, is proving beneficial to the railroad shippers, as they are receiving orders from River cities. Owing to competition from Kentucky and Indiana which have a distinct advantage in freight rates, the coal shipped there has to be sold at such low prices that there is little profit in it. In the East there is a plentiful supply of soft coal, and prices are low.

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For WRITING and LEDGER PAPERS We warrant a felt equal to anything imported.

PRICES CURRENT.

NEW YORK MARKET.

Paper Market.

DEALERS' SELLING PRICES.

Ledger and Record	$0.18	@	$0.94
Flat Caps, superfines	14	@	16
Flat Caps, fines	11½	@	13
Flat Caps, engine sized	7½	@	9
Blotting, American	8	@	15
Blotting, English	17	@	....
Book, super sized and calendered	6	@	9
Book, super sized and tinted	6	@	7½
Book, extra machine finish	5½	@	6
Book, machine finish, low grade	5	@	5½
News, No. 1	4	@	4½
News, rag and wood	5	@	5½
Poster	6	@	7
Hanging, superfine, No. 1	8	@	10
Hanging, superfine, No. 2	6	@	8
Hanging, machine satin	4	@	4½
Hanging, white blank, No. 1	4	@	4½
Hanging, curtain	3½	@	4
Hanging, brown	2½	@	3
Colored papers, double mediums	6½	@	8
Colored papers, glazed medium	7½	@	8½
Colored papers, tobacco	8½	@	9½
Colored papers, tissues, 20×30, ₱ ream	1.10	@	1.35
Tissues, black, 20×30, ₱ ream	1.40	@	1.50
White tissue, 20×30, ₱ ream	85	@	1.00
White tissue, 24×36, ₱ ream	1.30	@	1.50
Manillas, Flour sack, cream	10½	@	....
Manillas, Flour sack, drab	9½	@	11
Manillas, Rope, unbleached No. 1	9½	@	11
Manillas, Rope, unbleached No. 2	7½	@	9
Manillas, No. 1, light weight	6½	@	6¾
Manillas, No. 1, heavy weight	6¼	@	6¾
Manillas, No. 2	5	@	6
Manillas, Bogus	2½	@	3½
Wrapping Parchment	16	@	....
Tissue Manillas, full count, weight and size, 24×36, other sizes in proportion	75	@	80
Hardware, light colored, No. 1	9	@	10
Hardware, No. 1, glazed, tarred	7	@	8
Hardware, No. 1, glazed	4½	@	5
Binders' Boards, ₱ ton, No. 1	70.00	@	90.00
Binders' Boards, ₱ ton, No. 2	40.00	@	50.00
Strawboards, air dried, No. 1, ₱ ton	47.50	@	....
Strawboards, steam dried, No. 1, ₱ ton f. o. b. mill	....	@	24.00
Straw Wrapping, basis, 15×20, 15½ lbs., 20 sheets—			
36×40, from 28 to 42 lbs. ₱ rm	85	@	....
30×40, from 30 to 34 lbs. ₱ rm	....	@	72
24×36, from 24 to 26 lbs. ₱ rm	....	@	60
22×32, from 24 to 26 lbs. ₱ rm	56	@	....
30×30, 21 lbs., ₱ rm	....	@	44
20×30, from 14 to 17 lbs. ₱ rm	36	@	....
16×22, from 12 to 13 lbs. ₱ rm	28	@	....
18×28	....	@	32
15×20, 10 lbs. ₱ rm	17	@	19
15×20, from 7 to 8½ lbs. ₱ rm	17	@	19
14×18	....	@	15
12×16	....	@	13
11×15	....	@	11
Straw Wrapping, ₱ lb., heavy weight	1.75	@	1.85
Straw Wrapping, ₱ lb., light weight	1¼	@	....
Cigarette, Straw Tissue, per case of 100 boxes, 50 books to the box, 200 sheets to the book	21.00	@	30.00
Tea Papers, 16 sheet quires—			
12×18	18	@	20
14×20	22	@	....
Card Middles, ground wood	5½	@	6¾
Card Middles, long fibre wood	8¼	@	9
Card Middles, rag and wood	6	@	8
Pulp Lined Boards, single manilla, No. 100 and heavier	42.50	@	....
Pulp Lined Boards, double manilla, No. 100 and heavier	47.50	@	....

Rags, Rope and Bagging.

White Shirt Cuttings, No. 1	5½	@	6
Mill Assorted Whites	3½	@	3¾
Unbleached Muslins	4	@	4¼
City Whites, No. 1	3¼	@	....
New Seconds, light	2½	@	....
New Seconds, dark	1¾	@	2
No. 2 Whites	¾	@	1.15
Cotton Canvas, No. 1	3½	@	....
Linen Canvas, No. 1	....	@	3
Country Mixed, free of Woolens	60	@	75
Seconds (City)	30	@	50
Colors, ₱ 100 lbs.	30	@	40
Manilla Rope	2	@	2½
Manilla Rope, tarred	....	@	....
Gunny Bagging, No. 1	....	@	1¼
Mixed Bagging, No. 1	80	@	90
Burlap Bagging, No. 1	....	@	1¼
Kentucky Hemp Bagging	....	@	....
Tar Shakings	1	@	....
Hemp Twine Stock	2½	@	....
Jute Waste	¾	@	1

Hamburg Rags, &c.

N S C, New Shirt Cuttings	....	@	6
S P F F F, No. 1 Linens	....	@	5
S P F F, No. 2 Linens	....	@	4½
S P F, No. 3 Linens	....	@	3
F G, No. 4 Linens	....	@	2¾
F F, No. 5 Linens	2	@	....
Extra Fine Blue Linen, light color	2¾	@	....
L F B, Blue Linens	2½	@	....
C S P F F F, No 1 Cottons	....	@	4
C S P F F, No. 2 Cottons	....	@	3½
C S P F, No. 3 Cottons	2½	@	....
C C C, Colored Cottons	....	@	1
C F X, Low grade Cottons	⅞	@	1
Extra Fine Blue Cottons	....	@	1⅞

Chemicals, Coloring Materials, &c.

Alkali, 58 ₱ cent	1	@	1.20
Alum, lump	1.65	@	....
Alum, ground	1.75	@	....
Alum, Keystone	1¾	@	1¾
Alum, Diamond	....	@	2½
Alum, pearl	2¾	@	2¾
Alum, porous	2¾	@	2¾
Alum, Merrimac porous	2	@	....
Aluminous Cake	....	@	1¼
Anti-Chlorine	....	@	2¾
Bichromate Potash, American	....	@	10
Bleaching Powders, spot	1.80	@	1¾
Cambridge Ochre	11.25	@	....
Caustic Soda, 60 ₱ cent	2.70	@	2.82½
Clay, China, English, ₱ ton	12.50	@	17.00
Clay, China, "Star"	12.50	@	....
Clay, China, "Keystone"	10.75	@	....
Clay, South Carolina, ₱ ton	9.50	@	10.00
Clay, Terra Alba, French, ₱ cwt	1.00	@	1.12½
Clay, Terra Alba, American, No. 1	95	@	1.00
Corn Starch	3	@	3½
Copperas, American	....	@	80
Extract Logwood	9½	@	....
Mineral Pulp	10.25	@	....
Orange Mineral	....	@	9½
Potato Starch	4½	@	4¾
Prussian Blue, dry	20	@	35
Prussiate Potash, American	....	@	24½
Rosins, common to good strained, ₱ bbl	1.37½	@	1.42½
Rosins, E, ₱ bbl	....	@	1.65
Rosins, F, ₱ bbl	1.80	@	1.85
Rosins, G, ₱ bbl	1.95	@	....
Rosins, H, ₱ bbl	2.15	@	....
Rosins, I, ₱ bbl	2.45	@	....
Rosins, K, ₱ bbl	2.65	@	....
Rosins, M, ₱ bbl	2.85	@	....
Rosins, N, ₱ bbl	3.10	@	....
Rosins, W G, ₱ bbl	3.25	@	3.30
Sal Soda	1.10	@	....
Soda Ash Caustic, 48 ₱ cent	1.60	@	1.65
Soda Ash, carbonated, 48 ₱ cent	1.57½	@	1.70
Soluble Blue	40	@	55
Spanish Brown	½	@	1
Sugar Lead, white	12	@	....
Sugar Lead, brown	7	@	....
Sulphate of Alumina	....	@	2¼
Sulphuric Acid, 66 ₱ cent	1	@	1½
Ultramarine, blue	14	@	17½
Venetian Red	1	@	1½
Vitriol, blue	5½	@	5¾
Yellow Ochre Rochelle	1.35	@	1.50

BOSTON MARKET.

Paper Stock.

White Rags, No. 1	3½	@	3¾
No. 2 Whites	2	@	2¾
Common Seconds	2	@	2¼
Thirds and Blues	1	@	1.20
Southern Mixed Rags	80	@	1
Colors, country	½	@	¾
Colors, city	25	@	30
New Calicoes, light	2	@	2½
New Calicoes, dark	1½	@	1½
Shirt Cuttings, best	4½	@	5
Shirt Cuttings, good	4	@	4½
Shirt Cuttings, unbleached	3½	@	4
Shirt Cuttings, unbleached No. 2	2½	@	3
Shirt Cuttings, cheviots	2½	@	3
Overall Cuttings, blue	2½	@	3
Overall Cuttings, brown	2	@	2½
Shoe Rags, bleached	3½	@	4
Shoe Rags, unbleached	3½	@	3¾
Shoe Rags, brown	3	@	3¼
Cotton Flannels, bleached	3½	@	4
Cotton Flannels, unbleached	3½	@	3½
Corset Rags, drab	3½	@	3½
Corset Rags, white	4	@	4½
Tailors' Seconds	1½	@	1¾
Tailors' Colors	25	@	30
Cotton Canvas	3	@	3½
Cotton Canvas, No. 2	1½	@	1¾
Linen Canvas	1½	@	2
New Canvas Cutting	4	@	4½
Insole Canvas	3	@	3½
Print Papers, best	80	@	85
Print Papers, ordinary	25	@	....
Folded News	32½	@	35
Old Waste Papers	80	@	82½
Manilla Paper, No. 1	....	@	1.25
Manilla Paper, good mixed	85	@	90
Manilla Paper, blues	65	@	70
Mixed Book Stock	95	@	1
Books and Pamphlets	1½	@	1¾
Book Stock, light	70	@	75
Ledgers and Letters	1.80	@	2
Soft Book Shavings	1½	@	2
Hard White Book Shavings	2½	@	2¾
Leather Board Chips	75	@	85
Straw Chips	35	@	40
Shivey Bagging	1½	@	....
No. 1 Factory Bagging	1	@	....
Burlap Bagging	1.05	@	1.10
Burlap Bagging, large pieces	....	@	2
Kentucky Bagging	....	@	....
Mixed Bagging	½	@	⅝
No. 2 Bagging	⅜	@	½
Shakings, soft	½	@	....
Tarred Shakings	1	@	1¼
Standing Rigging	2½	@	2¾
Standing Rigging, foreign	2¼	@	....
Bolt Rope	2	@	2.10
Oakum Junk, No. 2	1½	@	1⅝
Tarred Paper Junk	1.15	@	1.20
Tarred Paper Junk, inferior	⅞	@	....
Manilla Rope	1¾	@	2
Tarred Manilla	1½	@	....
Hemp Strings	1¾	@	2
Sisal Strings	....	@	1.10
Wool Strings	90	@	1.10
Flax Tow	½	@	1
Flax Waste	½	@	1

New Papers.

Superfine Book	6	@	7
Fine Book	5½	@	6
News, rag and wood	3	@	....
Manilla, Cream Rope	9½	@	10
Manilla, No. 1, Rope	7½	@	8½
Manilla, Extra Jute	5½	@	6
Manilla, Jute and Gunny	5½	@	6
Manilla, No. 2	4	@	4½
Manilla, Bogus	2	@	3
Hardware, No. 1, tarred	7½	@	8½
Hardware, No. 2	6½	@	7
Hardware, red	4½	@	5½
Strawboards, air dried, ₱ ton	37½	@	45.00
Strawboards, steam dried, ₱ ton	30.00	@	35.00
Straw Wrapping, heavy	1.90	@	2¼
Straw Wrapping, light	2¼	@	2½
Binders' Boards, ₱ ton	45.00	@	50.00
Leather Board, Common, ₱ lb	3	@	4
Leather Board, counter	5	@	8
Leather Board, extra	8	@	10
Tar Boards, ₱ ton	100.00	@	110.00

Chemicals.

Alkali	90	@	1
Aluminous Cake, currency	1¾	@	1¾
Alum, American ground	....	@	1.95
Alum, American lump	....	@	1.85
Anti-Chlorine	2	@	2½
Bichromate Potash	9	@	9¾
Bleaching Powders	1¾	@	1⅞
Caustic Soda, 74 ₱ cent	....	@	2.65
Clay, English, ₱ ton	14.00	@	18.00
Clay, American, ₱ ton	10.00	@	11.00
Copperas, ₱ lb	65	@	75
Extract Logwood	5½	@	10½
Lime, Rockland, ₱ bbl	85	@	90
Prussian Blue, ₱ lb	32	@	35
Prussiate Potash, yellow	24½	@	25
Prussiate Potash, red	38	@	38½
Rosin, common strained, ₱ bbl	1.90	@	2.50
Rosin, Medium	2.20	@	3.00
Rosin, extra pale, ₱ bbl	3.00	@	4.50
Sal Soda, ₱ lb	85	@	89½
Soda Ash, 48 ₱ cent. caustic	1.40	@	1.60
Soda Ash, 48 ₱ cent. carbonated	1.37	@	1.50
Soluble Blue	2.50	@	3.50
Sugar Lead, white	11	@	12
Sugar Lead, brown	5½	@	6
Sulphuric Acid, 66°	½	@	1¼
Terra Alba, ₱ ton	9.00	@	15.00
Ultramarine, ₱ lb	7	@	25
Venetian Red, ₱ lb	70	@	2½
Vitriol, Blue	3½	@	3¾
Yellow Ochre	½	@	1

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SITUATION WANTED,

By young married man, as boss in color department; understands mixing colors for fine colored, white plated and chromo papers, enameled and glazed, ivories and satins for lithograph, bristols, boxboards and wedding cards; can give good reference. Apply to COLOR MIXER,
Post Office Box 818, Holyoke, Mass.

TO RENT—A FRONT ROOM, CONTAINING about 550 square feet of floor space, first loft, in building occupied by The Lockwood Press, on the southwest corner of Duane and Church Streets. Apply to HOWARD LOCKWOOD & CO., on the premises.

FOR SALE—PAPER MILL WITH TWO MAchines (near Boston). I. S. DILLINGHAM, 67 Federal street, Boston.

FOR SALE—A SECOND-HAND COPY OF HOFmann's Treatise on Paper Making in good condition for sale cheap. For further particulars address URGENT, care Paper Trade Journal.

FOR SALE—AN EMBOSSING MACHINE; very heavy; adapted for heavy embossing for decorative purposes. Address B., care of Paper Trade Journal.

FOR SALE.

Four 1,000 pound Umpherston Beating Engines, complete, with patent copper washers, sand traps, &c. Engines in first-class condition and now running, but to be taken out to make room for other machinery. Address UMPHERSTON,
care of Paper Trade Journal.

For Sale at a Bargain.

A Porter-Hamilton slide valve steam engine, 30x36, with wheel 12 ft. x 50 in.; rubber belt, eleven ply, 110 feet long, 48 inches wide; engine good as new; built by William Tod & Co., Youngstown, Ohio; can be seen near Pittsburg, Pa.; three New England two pocket hydraulic grinders; two Ticonderoga pulp screens. For further particulars apply to
W. H. PARSONS & COMPANY,
No. 4 Warren Street, New York.

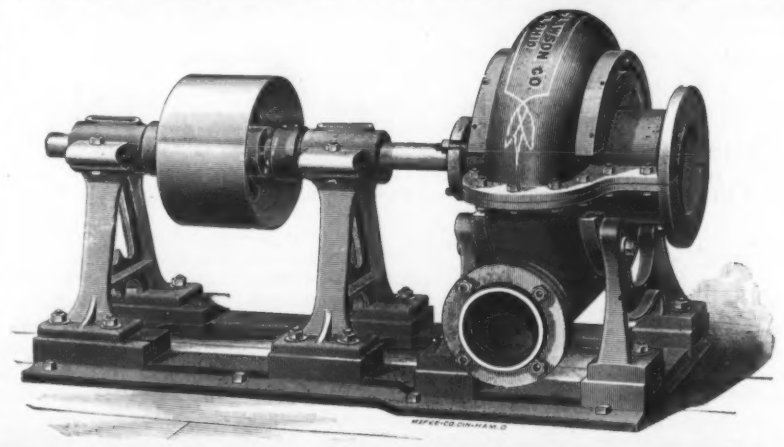
COATED PAPER.

Wanted a partner with some capital to invest; also as manager of a plant to manufacture coated paper of all kinds; excellent location, with building and machinery mostly in place and sure market for a large product. Address COATED,
Care Journal Office.

FOR SALE.

Two second-hand Jordans.
One Marshall Engine.
Two Rotaries, 6 x 20 ft.
Two Daniels Rag Cutters.
Two Revolving Paper Cutters.
All guaranteed in good condition; nearly new.
NOBLE & FOSS MACHINE CO.,
Hoosick Falls, N. Y.

THE BLACK & CLAWSON CO., MANUFACTURERS OF Paper Mill Machinery,



FOURDRINIER,

HARPER IMPROVED FOURDRINIER AND CYLINDER MACHINERY.

JORDAN ENGINES.

Jordan Engines Refilled.

Screens, Calenders, Rag Cutters, Cylinder Molds, Deckel Straps, Paper Cutters, Screen Plates, Dandy Rolls, Stuff Box Trucks, Iron and Brass Castings.

REVOLVING REELS AND STACK REELS.

FOR PARTICULARS ADDRESS

THE BLACK & CLAWSON CO., Hamilton, Ohio.

WE MAKE THE ONLY PERFECT DRYER.

MEDAL AWARDED AT WORLD'S FAIR FOR OUR SEAMLESS DRYER.

FOR SALE.

A set of six 88 inch revolving reels, new, our make, with heavy frames, gears, tension wheels, endwise adjustment, driven by weighted friction, a power rotating attachment and a reel turning device.
THE BLACK & CLAWSON CO.,
Hamilton, Ohio.

A FINE OPPORTUNITY

TO GO INTO BUSINESS.

To a company that understand the coating business an offer will be made to furnish a fully equipped plant, ample room with plenty of power. Well situated for future business. Will either lease plant or take an interest in the business. Parties answering advertisement must be in position to furnish all necessary capital to buy stock and carry accounts.
Address A. B. C., care of Journal Office.

NOTICE.

My attention having been called to the fact that certain parties are infringing certain Letters Patent granted to me, to wit: No. 212,866, dated March 4, 1879, covering a new form of carpet lining, and No. 265,608, dated December 21, 1880, covering the method of and apparatus for making the same, this is to notify all such persons, whether manufacturers or dealers, that any infringement of either of said patents will be prosecuted to the full extent of the law. MOSES NEWTON, Patentee.

TO LEASE.

The Hanmer & Forbes Company's Manilla Mill.

BURNSIDE, Conn., April 10, 1894. C. F. HANMER, Secretary.

RUST DONE AWAY WITH.

Wholesale paper dealers who take an interest in a patent by which any paper is absolutely protected from rust will please communicate with
GEBRUEDER KRAH,
ISERLOHN, GERMANY.

Notice. . . .

My contract with the Sheffield Car Co. for the manufacture and sale of my **Wood Pulp Screen** has expired by limitation, and hereafter all correspondence and communications in relation to my Pulp Screen should be directed to E. F. Millard, the inventor and sole owner of the Screen, at **Jackson, Michigan.**

I am prepared to furnish and fill all orders for my Screen on short notice.

E. F. MILLARD,
Dated Jackson, Mich., September 1, 1894. **Inventor and Proprietor.**

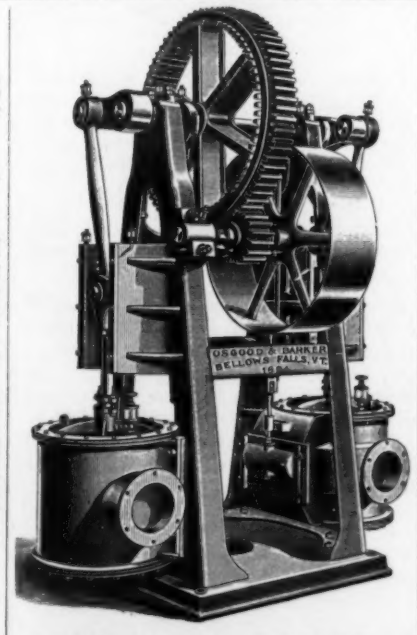
PAPER MILL MACHINERY.

One 84 inch Fourdrinier part to paper machine complete, with Gould screen.
One 74 inch Fourdrinier machine complete, Gould screen; gun metal press rolls, 15x75 inches; eight iron dryers, 36x72 inches; stack of nine chilled rolls, 72 inch face; upright reel and cone pulley cutter; Bess slitters.
One Gould screen, eight plates, 10x36 inches.
One Gould screen, eight plates, 12x40 inches.
One Barber's suction.
One 70 inch machine complete, Gould screen, Fourdrinier wire, 70x33 inches; first and second presses; eight iron dryers, 36x65¾ inches; stack five chilled rolls, four 12 inches, one 16x64 inches face; upright reel, slitter and winder.
Two new 1,000 pound Holyoke Machine Co. beaters, wood tubs.
One 1,000 pound iron tub beater.
Six beating engines, 36 inch roll, iron tubs.
One 1,200 pound Horne patent engine, new.
One rotary, 7x20, double riveted, 9-16 inch shell.
Three Scott & Roberts hydraulic pulp grinders.
Three Jordan engines.
Two rag cutters and duster.
Four iron dryers, 28x72 inches.
Send for catalogue of machinery, steam engines and boilers.
1,000 feet shafting, 2 to 6 inches diameter; 500 feet belting, 5 to 48 inches wide.
Parties wanting tools, stock or machinery used in a paper or pulp mill can find it here at a bargain.
F. H. DAVIS & CO., Exchange B'd'g, Boston, Mass.

IMPROVED MACHINES FOR MAKING SQUARE PAPER BAGS.

By our PATENT methods of obtaining slack paper, severing bag lengths and applying paste, we are enabled to make perfect bags at a speed not attained by any other machine on the market. For full information and prices address

The Diamond Paper Bag Co.,
WILMINGTON, DEL., U. S. A.



VACUUM PUMP.

Weight, Four Tons.

MANUFACTURED BY

OSGOOD & BARKER,

Bellows Falls, Vt.,

MANUFACTURERS OF

Sulphur Burners,
Acid Pumps,
Barkers,
Chippers,
FOR SULPHITE PLANTS.
Fourdrinier and Cylinder Paper Machines,
With one, two, three or four stacks of dryers.
Upright Reels, with two or three Drums,
Reel Stacks and Revolving Reels,
Rewinding and Slitting Machines,
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For buffing ends of the rolls.
Ground Wood Pulp Machines, Wet Machines.
Pulp and Paper Machinery
For all kinds of Paper.

WRITE FOR DESCRIPTIONS AND PRICES.

PROVIDENCE STATIONERY CO.

WHOLESALE DEALERS IN

Paper and Twine,

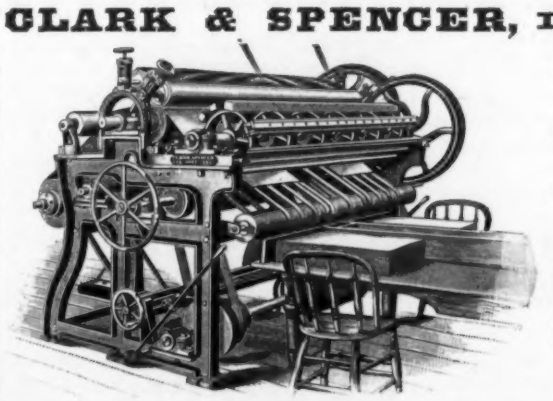
726 WESTMINSTER ST.,
Providence, R. I.

Don't Guess at Important Matters.

Bowsher's SPEED or MOTION INDICATOR IS INDISPENSABLE

In obtaining a UNIFORM speed of machinery, and is one of the most PROFITABLE little devices ever put in a mill. Will pay for itself in 30 days. Dial 12 in. in diameter. Weight 10 pounds.
N. P. BOWSHER, South Bend, Ind.

CLARK & SPENCER, LEE, MASS.



Revolving Paper Cutters,
Rag Cutters, Cylinder Machines,
Washing and Beating Engines,
Chilled Iron Calenders,
Fan and Stuff Pumps,
Engine Roll Bars.

DO YOU WANT A . .

RAG CUTTER,

TO CUT ROPE, JUTE BUTTS, BAGGING, OR ROOFING PAPER STOCK?

IF SO, WRITE TO

TAYLOR, STILES & CO.,

RIEGELSVILLE, N. J.

RIVERSIDE PAPER CO., HOLYOKE, MASS. — "MAGNA CHARTA" BOND, "PURE LINEN STOCK" LINENS (WHITE WOVE AND CREAM LAID), "DUNDEE RECORD" LEDGERS.

FRANKLIN PAPER CO., HOLYOKE, MASS. — ANIMAL SIZED AND SUPERCALENDERED BRISTOL BOARD, BOX BOARD, DUPLEX AND COVER PAPERS, IN WHITE, TINTS AND COLORS.

ESTABLISHED 1848.

JOHN WALDRON, NEW BRUNSWICK, N. J.,

MANUFACTURER OF ALL STYLES OF

COATING MACHINERY FOR LITHOGRAPH, LABEL, FANCY, GLAZED, BOOK AND SAND PAPERS.

Also Cardboard and Paper Hangings Machinery. Hilbers, Stalb and Waldron Patent Hanging Up Machines. Patent Power Reeling Machines for Coated Papers and Cardboard. Embossing Machines, Paper Rolls, Polishing Machines, &c.

Machinery is universally used by the manufacturers of above goods in the United States and Canada.

PAUL S. REEVES PHILADELPHIA

MANUFACTURER OF

BRONZE,

Especially adapted to resist the action of SULPHITE SOLUTIONS in PULP MACHINERY.

COMPOSITION SHELLS A SPECIALTY. | **Phosphor Bronze, Brass, Babbitt Metals.**

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25 Water St., NEENAH, WIS.,
MANUFACTURER OF
COGS
AND ALL KINDS OF
MILL WORK.

You will save money if you have no cog pattern by drawing a cog out of a wheel, marking the exact width on the face cut and the exact thickness on the end cuts of this diagram and sending to me. If you want one key seat only, mark off one when you send card for pattern. I carry a complete stock of seasoned Hard Maple and can make Cogs on short notice. When you write for price give width and thickness of larger end. Write for pattern cards.

NEW HAVEN MFG. CO.,

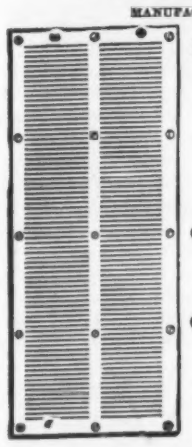
New Haven, Conn.,
Manufacturers of

Lathes, Planers, Drills, Slotters, ETC.

JUDSON & WILLIAMS,

HOLYOKE, MASS.,

MANUFACTURERS OF



SCREEN PLATES

—OF—

BRASS

—OR—

CAST METAL.

REPAIRING

OLD SCREEN PLATES

A SPECIALTY.

ALL KINDS OF SCREEN-PLATE WORK.

The

WESTERN SCREEN PLATE WORKS,

OF

APPLETON, WIS.

Have Established A

BRANCH

Office and Works

Address:

CENTRAL SCREEN PLATE WORKS,

NIAGARA FALLS, N. Y.

METAL SKYLIGHTS

Absolutely no leakage from any source; no dripping or sweating; fire-proof; ventilating.

THE CLOVER LEAF

VENTILATOR

FOR MILLS, FACTORIES AND DYE HOUSES.

Made of galvanized iron or copper. Strong upward draft; exhausts foul air, odors, gases, steam, etc. Perfectly storm-proof. Send for illustrated circular.

E. VAN NOORDEN & CO.,

383 Harrison Ave., BOSTON, Mass.

THE MORRISON & HERRON TESTING SYSTEM.

THE MORRISON & HERRON IMPROVED PAPER TESTING MACHINES.

Three Different Machines

—FOR—

Strength, Thickness and Weight.

A NEW PRINCIPLE APPLIED IN TESTING PAPER.

Thickness shown to the sixteen-thousandth part of an inch.

Used in the GOVERNMENT PRINTING OFFICE and the DEPARTMENTS at Washington.

Price, complete,	$150.00
Or Strength Indicator,	75.00
Thickness Gauge,	75.00
Paper Scale,	20.00

ADDRESS ALL ORDERS TO

HOWARD L. MORRISON,

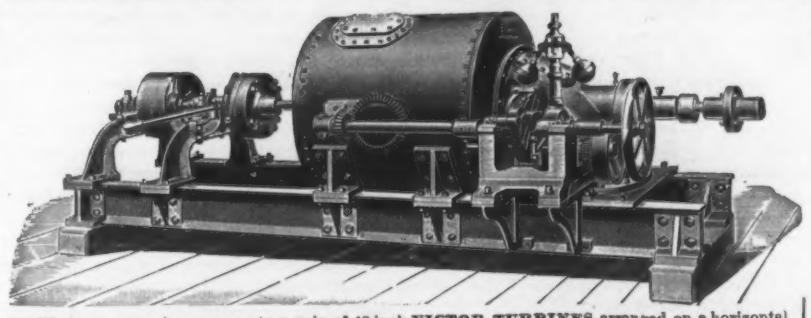
1009 Pa. Ave., N. W., Washington, D. C.

CAUTION.

All persons are liable to prosecution who make buy or use Paper Testers that confine and break paper within its edges, as my Patents cover that method.

THE VICTOR TURBINE.

UPRIGHT or HORIZONTAL.



THE above engraving represents a pair of 12 inch VICTOR TURBINES arranged on a horizontal shaft, with Cast Iron Flume, Draft Tubes, End Bearings for Shaft, and Driving Pulleys complete, all mounted upon a substantial cast iron bed plate. The entire arrangement is very complete and strictly first class in every particular. We are now prepared to furnish Victor Turbines, either single or in pairs, on horizontal shafts, and where the situation admits of their use we recommend them.

In use in a large number of best Paper and Pulp Mills in this and other Countries.

TESTS IN HOLYOKE FLUME.

SIZE WHEEL.	HEAD IN FEET.	HORSE POWER.	PER CENT. OF USEFUL EFFECT
15 inch	18.06	30.17	.8932
17½ inch	17.96	36.35	.9030
20 inch	18.21	49.00	.8532
25 inch	17.90	68.62	.8584
30 inch	11.65	52.54	.8676
35 inch	17.29	133.19	.8497
40 inch	16.49	148.93	.8253
48 inch	15.51	179.29	.8203

CYLINDER* OR REGISTER *GATE.

INSURING HIGHEST PERCENTAGE OF USEFUL EFFECT AT

FULL AND PARTIAL GATE.

Such results, together with its nicely working gate and simple, strong and durable construction, should favorably commend it to the attention of all discriminating purchasers.

THESE WHEELS ARE OF VERY SUPERIOR WORKMANSHIP AND FINISH.

THE VICTOR WHEEL Is particularly adapted to setting on **HORIZONTAL SHAFT,** DISPENSING ENTIRELY WITH GEARS.

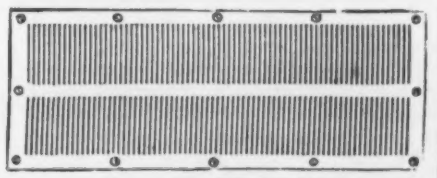
STATE YOUR REQUIREMENTS AND SEND FOR CATALOGUE TO

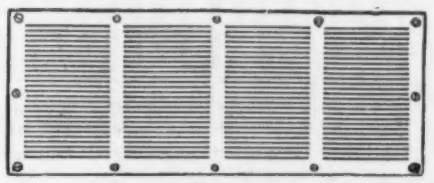
THE STILWELL-BIERCE & SMITH-VAILE CO., DAYTON, OHIO, U. S. A.

ANNANDALE

Screen Plate Co.,

PATERSON, N. J.





Manufacturers and Repairers of

SCREEN PLATES.

Our new Plates are made of the

VERY BEST METAL,

and for price and durability cannot be surpassed.

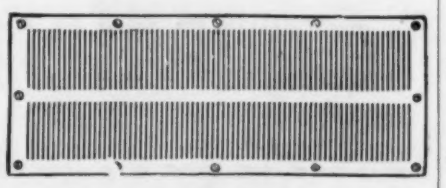
OLD PLATES RE-CLOSED.

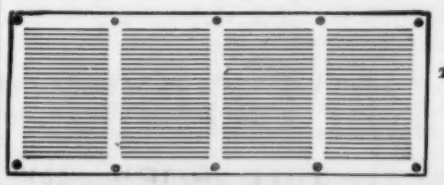
A. A. TRAIN,

21 Main St., FITCHBURG, MASS.,

MANUFACTURER OF

Screen Plates





OF BRASS OR CAST METAL,

AT PRICES

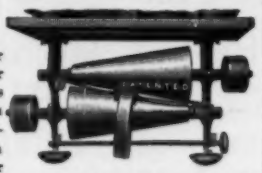
THAT CANNOT BE SURPASSED.

BEST STOCK USED.

Write for Prices and Gauges.

All Work Warranted.

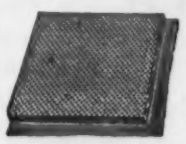
THE EVANS FRICTION CONES



Are running forty-four (44) of the best paper machines in this country and in Europe, transmitting from 20 to 40 horse power each. Thousands of small Cones, hanging and standing, in operation, driving all kinds of machinery. Send for Catalogue "G."

EVANS FRICTION CONE CO., 85 Water St., Boston, Mass.

SAMPLES AND QUOTATIONS FURNISHED UPON APPLICATION.



IMPERIAL ASBESTOS SECTIONAL PIPE

AND BOILER COVERING.

Asbestos Prepared Roofings.

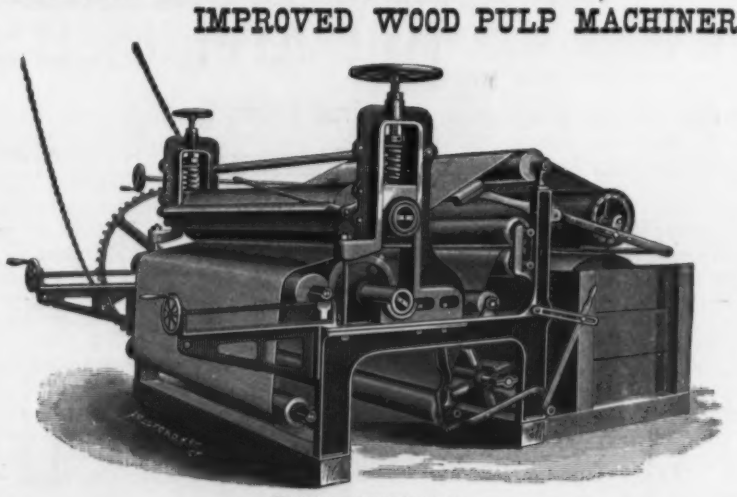
(Specially adapted to Paper Mills).

Chicago, Ill. **H. F. WATSON COMPANY,** Erie, Pa.

TREVOR MANUFACTURING CO., LOCKPORT, N.Y.

Manufacturers of

IMPROVED WOOD PULP MACHINERY.

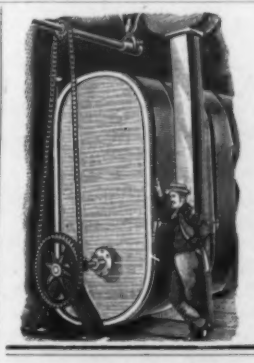


IMPROVED WET MACHINE.

"Niagara" Grinders, Double and Single Splitters, the "Trevor" Improved Wet Machines, "1890" and "Giant" Barkers, Cross Sawing Machines, Drag Saw Machines, Improved Wood Slabbing and Sawing Machines, Knot Borers, Stuff Pumps, Double and Triple Pumps, for general use in Pulp and Paper Mills.

Write for Catalogue "C" and Discounts. Address

TREVOR MANUFACTURING CO., - - LOCKPORT, N. Y.



THE SAVAGE PERFECTING STUFF CHEST.

Fits into a narrow space and requires but little power to operate.

It has a double agitating motion, moving the stuff in different directions, which prevents "floating."

It empties itself clean; no waste of stuff and protects from dirt.

Quantity of stuff in chest always shown by indicator.

In writing give space in height, length and breadth if pressed for room; also the amount of stock in dry paper that the chest is wanted to hold.

PATENTED AND MANUFACTURED BY

E. L. SAVAGE, Mechanic Falls, Me.

FOSTER & BROWN, SACCARAPPA, MAINE.

MACHINISTS AND IRON FOUNDERS.

SPECIALTIES:

Improved Paper-Coating Machines; Hanging Machines and Power Reels for Coated Paper; the Merrill-Foster Noiseless Pulp Screens; Paper Slitting and Trimming Machines; Hardened and Ground Slitters; Automatic Elevators.

BUILT UNDER OUR OWN SUPERVISION.

THE "WANDEL" Patent Rotary STRAINER

Is the best Screen on the market, and is now used in

148 Paper Mills in Germany.
25 Paper Mills in Austria.
85 Paper Mills in France.
12 Paper Mills in Switzerland.
31 Paper Mills in Italy.
16 Paper Mills in Spain.
26 Paper Mills in England.
9 Paper Mills in Sweden and Norway.
10 Paper Mills in Russia.
And in the Thilmany Pulp and Paper Mills, Kaukauna, Wis.

The "Wandel" Patent Rotary Strainer is delivered ready for use, with or without the bearing frame.

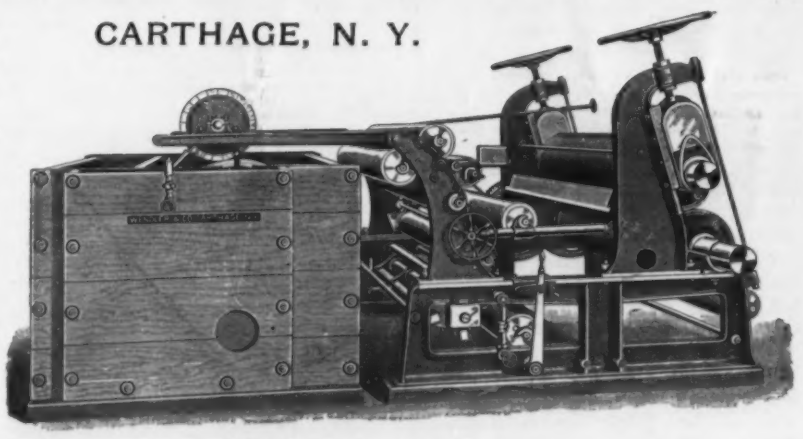
FOR FURTHER PARTICULARS APPLY TO

CHR. WANDEL, Reutlingen, Germany.

Or GEORGE HAMILTON, 74 Wall St., New York.

WENDLER MACHINE CO.,

CARTHAGE, N. Y.



STANDARD WET MACHINE.

A Full Line of Centrifugal and Fan Pumps.

ALL MACHINERY AND APPLIANCES USED IN THE MANUFACTURE OF WOOD PULP AND SULPHITE FIBRE.

Manufacturing News.

EASTERN STATES.

The paper mill at Valley Falls, R. I., which has been for a long time idle, is to converted into a factory for the manufacture of cotton warps.

The mill of the A. H. Hubbard Company, Greenville, Conn., has been idle for two weeks, but the company is looking forward to better times.

Most of the paper mills in Eastern Connecticut are idle much of the time on account of the long continued drought. While this is regretted by a few who had urgent orders, it is regarded as a harbinger of a good, brisk fall trade and steady business thereafter.

The Woodworth Mills, New London, Conn., are getting into trim for steady business.

Among the mills affected by short water is that belonging to the estate of John Robertson, at Quaker Hill, Conn. It is getting all repairs made for a rushing fall trade as soon as sufficient rain comes.

The New England Fibre Company, Turner's Falls, Mass., is putting in a new boiler.

The log haul at the head of Rumford Falls, on the Androscoggin River, at Rumford Falls, Me., is now in successful operation. It was built for the Rumford Falls Paper Company, and consists of a longitudinal carrier 1,000 feet long, raised on a trestle about 30 feet high and running parallel with the river some 250 feet back from the shore. The area between the trestle and the shore has a capacity of storing from 30,000,000 to 40,000,000 logs. The paper company will store 20,000,000 there this fall for next season's use. A wide, sloping railway runs from the centre of this log trestle into the river. Endless chain carriers with grapple seats travel up this inclined railway, picking up the logs as they float, carrying them bodily at right angles with the chain and rolling them one by one into the longitudinal trough. In this trough is a continuously traveling chain with grapples, which carry the log to either extreme end of the trestle. It may be rolled off at any point by attending workmen. A 40 horse power engine under the trestle at the centre furnishes the motive power. The logs are kept in continuous motion from the time they leave the water until they are landed on the pile. A crew of ten men, with an expenditure of 20 horse power, will haul out about 1,500 logs of all sizes per day. From twenty to thirty logs may be on the carrier and moving at one time. Everything moves with precision and ease, making little more noise than a canoe gliding through the water.

MIDDLE STATES.

Orrs & Co.'s paper mill at Troy, which had been shut down for seven weeks and which started up again on the 3d inst., was shut down indefinitely on September 7, on account of low water and the discovery of a break in the masonry over the raceway.

The addition to the factory of the Union Bag and Paper Company at Sandy Hill, N. Y., has been completed. It is 90x160 feet in dimensions, and has 40,000 square feet of floor surface. It will be heated by hot air and lighted by electricity.

Chauncey Killmer has sold his paper mills and cottages at Rock City Falls, N. Y., to Mr. Howard, of New York, who will take possession on October 1. Chauncey Killmer began his business life as manufacturer of paper at Rock City many years ago, and has risen from a comparatively poor man to one of the wealthiest and most respected manufacturers in New York State. The whole output of these mills for many years has been contracted for and used by the *Sun*. Mr. Killmer, who is a resident of New York, retains his summer home at Rock City Falls, where he is held in grateful esteem as a valued friend and generous benefactor.

The Black River Wood Pulp Company, Black River, N. Y., has put in an eight plate 12x40 "Gotham" screen, built by the Brownville Iron Works, Brownville, N. Y., and to be run on ground pulp.

The Glens Falls Paper Box Company has contracted to deliver 50,000 boxes per week, for use in packing Government envelopes. The contract has been taken with a four years' limit.

For the past three months the New York and Pennsylvania Company has been operating an electrical bleaching plant at its mill at Johnsonburg, Pa. The process is that invented by Prof. Alfred D. Wolf, and has been very successful in the bleaching of both soda and sulphite fibre.

The Ontario Paper Company, Watertown, N. Y., has put in a ten plate 12x40 "Gotham" screen (second order), to be used with its 86 inch news machine.

WESTERN STATES.

The Ohio Strawboard Company, Urbana, Ohio, has placed in its new mill ten 36 inch and nine 30 inch electric ventilators, with bases and dampers complete. These ventilators were made by the White & Ennis Cornice and Roofing Company, Troy, N. Y.

It is reported that the Allegan Paper Company, Allegan, Mich., will remove its plant from that locality.

SOUTHERN STATES.

The paper mills now in course of erection at Sparta, Tenn., will be operated under the name of the Sparta Pulp and Paper Mills. E. Hatch is president, J. R. Tubb treasurer, and J. G. Evans secretary.

The large new paper mill of Tubb & Hatch, Cuthbert, Ga., is approaching completion, and will, it is thought, be ready for active operations by October 1.

Frank Overall, Mobile, Ala., is about to establish a factory for the manufacture of cocoa fibre.

A Toilet Paper Suit.

A suit was brought in the United States Circuit Court for the Southern District of New York on December 19, 1891, by B. T. Hoagland's Sons, 38 John street, New York, against the Gayetty Paper Company, 42 West Broadway, New York, for alleged infringement of complainants' trade mark used in connection with the sale of toilet paper. The former company was composed of De Witt Hoagland, Charles T. Hoagland and John W. Hoagland at the time of the bringing of the suit, but De Witt Hoagland has since died. They are sons of B. T. Hoagland and succeeded to their father's business when he died on September 15, 1890. The latter company at the time the suit was brought was composed of George H. Conant, of Brooklyn, N. Y., now of Westfield, N. J., who was then superintendent of the soap department of the National Starch Manufacturing Company for the State of New York, and Harry K. Gayetty, 273 Bleecker street, New York, who for twenty years had been in the employ of the Diamond Mills Paper Company, Bloomfield, N. J., as general man. In the winter of 1891 Mr. Gayetty left the employ of the Diamond Mills Paper Company with the determination to engage in the manufacture of toilet paper on his own account, and on May 15, 1891, formed a partnership with George H. Conant under the style of the Gayetty Paper Company. Harry K. Gayetty was one of three children of Joseph C. Gayetty, who died in Bloomfield, N. J., on December 17, 1867.

Joseph C. Gayetty put on the market a toilet paper which was in high favor in his day, and was a standard commercial article, being regularly quoted in the price currents of the papers then published, and although not having large sales in this country on account of its high price, was in great demand abroad, especially in Great Britain and in other foreign countries. This paper had always been known as "Gayetty's Medicated Manilla Paper for the Water Closet." When Mr. Gayetty brought out this paper he was in the employ of Goddard & Ballard, who acted as its first agents for a short time. They spent large sums of money in advertising it in Europe and America, and this is said to have been the main cause of their subsequent failure. One way of advertising it was on a drop curtain in Barnum's American Museum, New York.

The paper was next handled by Jotham C. Meeker, a wealthy capitalist of Brooklyn, who invested large sums in its sale and manufacture. He was succeeded by Demas Barnes & Co., of New York, to whom Mr. Gayetty sold the right to manufacture the paper for ten years, beginning on January 1, 1866, and after the expiration of the Barnes contract on January 1, 1876, B. T. Hoagland came into possession of the property. The paper was manufactured for these several parties by different men, under the personal supervision of Mr. Gayetty. For Goddard & Ballard it was made in a mill within 100 miles of Boston. for Mr. Meeker, by Mr. White, of Hohokus, N. J., and for Demas Barnes & Co., by Mr. White, of Bloomingdale, N. J., and the Bunce Paper Company. Mr. Gayetty started in this business about 1851, and had an office at No. 2 Beekman street. B. T. Hoagland then kept an exchange office on the west side of Nassau street near John street, New York. Subsequently, about 1859, Mr. Hoagland removed to the office of Mr. Gayetty.

From these early relations between the two men has grown the trouble which resulted in the suit between their heirs and business successors. It is a fact that since January 1, 1876, the two firms of B. T. Hoagland and B. T. Hoagland's Sons have virtually controlled the manufacture and sale of this toilet paper, and the way in which the right so to do was acquired is shown by the complaint itself on file, which is as follows: On April 7, 1858, Joseph C. Gayetty deposited with the clerk of the court for the Southern District of New York the title of a print for "Medicated Manilla Paper" which had been duly recorded in conformity with an act of Congress amending several acts respecting copyrights. On May 17, 1865 he sold to Theodore F. De Luce a one-half interest in this copyright, cylinders, cuts, labels, &c. On September 6, 1865, he entered into a contract with Demas Barnes & Co., wholesale druggists, New York, granting them the exclusive right to manufacture and sell this paper for ten years from January 1, 1866, and on October 19, 1865, Mr. Gayetty gave B. T. Hoagland a bill of sale of this contract for the term of five years from January 1, 1866. On January 11, 1866, Theodore F. De Luce sold to B. T. Hoagland his interest in the Barnes contract, and on April 3 transferred to him all of his interests in the copyright and the same was done by Mr. Gayetty.

On December 5, 1866, B. T. Hoagland bought from James T. Leete for $1 a contract given him by Mr. Gayetty on the same day, selling him for $25 the right to use his (Gayetty's) name for any purpose forever, and also on April 17, 1868, bought from Jotham C. Meeker his interest in the copyright which he had purchased from Mr. Gayetty on December 28, 1861. On February 25, 1876 B. T. Hoagland contracted with the Diamond Mills Paper Company to manufacture and sell to John F. Henry, Curran & Co., New York, 600 cases of this paper, and no more. The complaint further recites that the complainants used said trade mark upon flat pasteboard boxes, oblong in shape, and about 8½x6 inches, covered with white paper and open at one end, each box containing 500 or 1,000 sheets each. A semicircular piece was cut from the edge of the opening of the box upon the label side, and the paper was watermarked "J. C. Gayetty, N. Y." Right to this copyright was also claimed by registration thereof on January 26, 1886, in the U. S. Patent Office, particularly since May 15, 1891, when Conant and Gayetty formed a partnership. The complaint also represented the value of the trade mark at $100,000, and claimed damages for $25,000, asked for an recounting and a preliminary injunction.

The answer to this complaint was filed on February 13, 1892, and substantially denies each allegation; but it says that Joseph C. Gayetty never had issued to him a copyright for a trade mark, as he did not comply with the law, and that therefore he never became possessed of any property therein; that all of the assignments made by Theodore F. De Luce, J. T. Gayetty himself, and others, to B. T. Hoagland, and all acts performed under them were illegal, except the contract with Demas Barnes & Co.; that Hoagland's control with the Diamond Mills Paper Company was part of a scheme to obtain an unwarranted and unlawful possession of ma-

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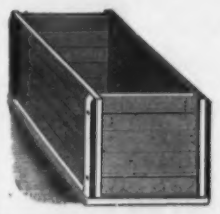

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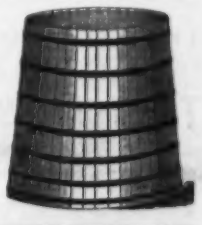

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terial and appliances; that the paper sold by B. T. Hoagland and successors was only an imitation of the paper invented and produced by Joseph C. Gayetty, and was calculated to defraud and deceive the public, and contained none of the medicinal properties possessed by the original "Gayetty Medicated Manilla Paper"; that on October 27, 1891, they procured a copyright of a trade mark, consisting of a figure somewhat resembling a Maltese cross, which is scarcely distinguishable from any feature of the alleged infringed trade mark, &c.

The first evidence was taken before a commissioner on April 27, 1892, and from that time until September 29, 1892, Charles T. Hoagland and John Morgan Richards, a wholesale druggist, of London, England, who had acted as foreign agent for the sale of the Gayetty paper for twenty-five years, and Frederick S. Judd, were examined as witnesses for the complainants, and H. K. Gayetty, G. H. Conant, Charles V. Warren and Charles A. Mortimer, a member of the Diamond Mills Paper Company, were examined as witnesses for the defendants. A mass of evidence was the result, but finally, after the lapse of over a year and a half after the last witness was examined, a written request was made to the defendants' counsel by the complainants' counsel for permission to discontinue the suit, and on June 29, 1894, a formal motion was made for dismissal by the counsel for the complainant. While this suit was pending, in September, 1893, the Gayetty Paper Company was succeeded by the Joseph C. Gayetty Paper Manufacturing Company, a corporation having the following named officers: President, John M. Schmidt; vice-president, Fred. A. Leporin; secretary, Charles V. Warren; treasurer, George H. Conant; superintendent of manufacture, H. K. Gayetty, and within a few days after the dismissal of the suit, a counter suit was brought by the Joseph C. Gayetty Paper Manufacturing Company against B. T. Hoagland's Sons, which is now pending.

Some very interesting testimony was taken, but the most important witness seems to have been Charles V. Warren, now secretaryy of the Joseph C. Gayetty Paper Manufacturing Company, cousin of H. K. Gayetty, and at the time general complaint clerk in the Bureau of Engineers, Department of City Works, Brooklyn, N. Y. Mr. Warren had known Joseph C. Gayetty from boyhood, and knew his business methods, tests and formula for making the toilet paper. He testified that after the death of Joseph C. Gayetty he acted as attorney for his widow; that he drew and saw served by an officer upon B. T. Hoagland on November 17, 1879, a notice requiring him to stop the manufacture and sale of the paper; and that Mrs. Gayetty made claims upon B. T. Hoagland and the Diamond Mills Paper Company for the labels, cylinders, machinery and other property owned by her husband after January 1, 1896, which were recognized by the Diamond Mills Paper Company, and that Henry Curran & Co., for whom the Diamond Mills Paper Company was manufacturing 600 cases of paper, under agreement with B. T. Hoagland, offered to purchase all of her interest; that there was no provision whereby the property and rights should be turned over to B. T. Hoagland after the expiration of the contract with Demas Barnes & Co.; that Mrs. Gayetty in 1876 or 1877 had in her possession the original block containing the facsimile of the signature to be used in making the trade mark upon the packages of paper; that the tests by which Mr. Gayetty had determined whether a paper was medicated or not had been illustrated to him by Gayetty; that by following them he had got the same results as Gayetty, and that he could tell if given a piece of paper whether it was medicated after Gayetty's formula; that he had repeatedly tested the paper made by the complainants and found no indication that it was medicated after that formula. This method of testing consisted in rolling two or three sheets of the paper into a small ball, putting same into the mouth, chewing it up and then spitting it out. By this means the medicinal properties could not be mistaken. The ingredients in the original Gayetty paper were three: that these ingredients were kept in separate bottles, each of which would be first tested and the results of the test compared therewith; that this paper was undoubtedly not only free from chemicals but was medicated; that in the paper said to be made by B. T. Hoagland he was unable to discern any medicinal qualities; that Mr. Gayetty gave his father his formula for making the paper, which he afterward found among his papers; that his father was a paper manufacturer for many years; that this process was set forth in a caveat filed in the Patent Office about 1858 or 1859; that J. C. Gayetty had attempted to procure a patent for the method of putting up his paper in rectangular form, but was not successful; that this has been a common method since 1876 of putting up medicated papers, and that writing paper had been put up in this way prior to that time; that in 1877 he registered the label of Joseph C. Gayetty. It was proved by the complainants that upon demand of B. T. Hoagland the cylinder and other machinery used by the Diamond Mills Paper Company under its contract to furnish John F. Henry, Curran & Co. with 600 cases were delivered to Mr. Hoagland's truckman by Charles A. Mortimer with the knowledge of H. K. Gayetty.

A reporter for THE PAPER TRADE JOURNAL sought further light as to the reasons for the discontinuance of the action from the parties concerned. Charles T. Hoagland, a complainant, refused to answer any questions and referred to his counsel, Arthur M. Peirce, who when seen denied that the suit had been dismissed.

"What has been done, then?" was asked.

"The suit has been withdrawn," was the reply.

"For what reasons?"

"Well, we found after having taken some evidence that we had not taken the right steps."

"In other words, after proceeding for a short time you found you had taken the wrong course and had put about ship?"

"Exactly so."

"Is this the end of the matter?"

"By no means. Other suits have been brought against the Gayetty Paper Company, which I believe is now a corporation."

"What is their nature?"

"That I can't say. They are suits growing out of the relations of J. C. Gayetty and B. T. Hoagland, but because of certain things I cannot now talk about them."

Any further attempts to interview Mr. Peirce, as well as the attorney for the defendants, Worth Osgood, were unavailing. "The old suit," said Mr. Osgood, "is out of my hands."

"The old suit?" interrupted the reporter. "Is there another suit?"

"I can't talk about that."

"I understand you have now sued B. T. Hoagland's Sons," suggested the reporter. "Is not that so?"

"I am not permitted to say anything about it. The old suit has been settled and the papers are on the files of the court, where any Tom, Dick and Harry may examine them."

"But about the new suit; such a suit has been brought?"

"I can't say anything about it. As an attorney I am forbidden to talk, and I have no right to discuss my client's affairs. No attorney does do so. He does it at his peril."

"The other side makes certain statements; don't you want to correct them and set your side right and correct any of their statements you consider wrong?"

"You cannot get a word out of me. I might go on and tell you a long story to deceive you and put you off, but I won't talk at all. You can depend that in nine cases out of ten when lawyers try their cases in the press they tell a 'cock and a bull' story which has no foundation and contains no facts whatever. No, I shan't say a word."

H. K. Gayetty was found more communicative. "So they have brought other suits against us, have they?" he said. "Well, I did not know it, and I think we should if it was the case. The boot is on the other leg. We have sued *them*. The old suit was hardly more than dismissed before we brought a suit against B. T. Hoagland's Sons. And they say the suit was not dismissed—only withdrawn. Well, there *is* a difference; but look at that paper. What does it say? That is a letter from Mr. Peirce to our attorney saying that he does not see any use in letting the case stand any longer, and that if agreeable to his clients will dismiss the same. And then look at these papers. Is the word 'withdraw'? I guess not. It says 'discontinue and dismiss.' You are satisfied now that this was a dismissal at their request? We feel good over this, for we consider it a victory, and if justice prevails we will win our other suit. They tried to run us out of business, but they couldn't do it. They tried hard enough, though. If they had a good cause why didn't they push it? I am sure we would not let up if we felt we were right. They knew they were wrong. When we adopted our label we tried all manner of tests to see if it conflicted with Hoagland's. We placed the two together at one side of the room and asked a little child to bring us one or the other, as we requested, and it always brought the right one. The size of the box is not the same, and the reading is totally different. If there is any similarity it is in the box in which 'Bromo' paper is put up, not in ours. The paper is all different. Our defense was that J. C. Gayetty had never complied with the requirements of the law in securing a trade mark, and that therefore he had no copyright to be infringed."

A chattel mortgage has been foreclosed against Wm. H. McCarthney, dealer in books, &c., Charlevoix, Mich.

Sodium Hypochlorite and Pearl Hardening.

Sodium hypochlorite is got from bleaching powder solution by replacing the calcium combined as hypochlorite with sodium. It is commonly prepared by adding carbonate of soda to bleaching powder solution. This method, however, involves the use of a large amount of soda ash, which adds considerably to the cost of bleaching. The reaction takes place as follows:

$$Ca(ClO)_2 + Na_2CO_3 = CaCO_3 + 2NaClO;$$

bleaching powder and soda ash = chalk and sodium hypochlorite.

Soda ash is dissolved in hot water and added to a 10 per cent. bleaching powder solution until no further turbidity is noticed. The calcium carbonate (chalk) separates out first of all as an intensely flocculent precipitate, which becomes, on stirring, granular and sinks to the bottom.

According to the above equation, 100 gallons of a 10 per cent. solution of bleaching powder would require about 56 pounds of soda ash. It is found necessary, however, to add more of this in practice, partly on account of the presence of free lime, and partly because complete decomposition is not effected without an excess of soda ash. I found on comparing the percentage of available chlorine and the specific gravity of sodium hypochlorite so prepared with bleaching powder solutions (calcium hypochlorite), that for the same specific gravity the two solutions contain the same percentage of available chlorine.

There is a liability of adding too much sodium carbonate, since solutions of bleaching powder are not of constant composition. In order to avoid this, and also to reduce the cost to a minimum, sodium sulphate or salt cake can be substituted for sodium carbonate. The change which then takes place is according to the following equation:

$$Ca(ClO)_2 + Na_2SO_4 = 2\,NaClO + CaSO\,4;$$

bleach and salt cake = sodium hypochlorite and pearl hardening.

The salt cake is dissolved in hot water in a copper, and if any iron be present in the salt cake it is advisable to add a little soda, and to boil for a few minutes. The iron separates out as oxide and first forms a scum on the surface, which after some time falls to the bottom. The clear liquor at 20° Twadell is run into a bleaching powder solution at 8° to 10° Twadell in sufficient quantity to precipitate the whole of the lime as sulphate. If sodium sulphate be used in excess, being itself neutral, there is no fear of the solution becoming alkaline.

For some time after the addition of the salt cake to the bleach solution no crystallization takes place, so that a thorough admixture of the two solutions can be made before the chemical change takes place. It is very important, so far as the crop of crystals is concerned, that the two should be thoroughly mixed. The rapidity of the formation of the crystals of pearl hardening depends upon the rate of agitation. The size and form of the crystals also depend upon the agitation in a large measure. If small crystals are required, the agitation should be fairly brisk; and if a rapid subsidence is required, the deposits of crystals from the previous mixings should be well stirred from the bottom. The crystals from previous mixings always form a nucleus or starting point for the formation of new crystals, and the crystallization taking place in clusters, they soon fall to the bottom when the agitation is stopped, leaving nothing but the clear solution of sodium hypochlorite ready to be drawn off from the tanks for use. It is best to withdraw the solution by means of a float, and to insure that the crystallization has taken place.

If the crystallization is not complete the pipe used to convey the solution will rapidly become blocked up with crystals of pearl hardening. In order to test the solution to see if sufficient salt cake has been used, some air from the lungs should be blown through a clear solution of the same. If it shows any turbidity there is still some unprecipitated lime which is capable of precipitation as pearl hardening on the addition of a further quantity of salt cake solution. The solution should be well shaken with a few crystals of pearl hardening, and filtered before the above test is applied, in order to insure that crystallization has taken place to the greatest possible extent. If a turbidity is noticed before shaking or blowing air through, and not afterward, then it may be inferred that the crystallization is not complete, and the turbidity is due to lime salts present, capable of precipitation as pearl hardening on further agitation.

The crystals formed as above are of two kinds; they are partly long, needle-shaped, and partly flat, tabular crystals. They are always found associated together when precipitation takes place as above. The relative proportions of the flat tabular and the needle-shaped appear to vary, and care should be taken that the conditions, as far as possible, favor the formation of the latter, which are the most useful in the manufacture of paper.

The size of the crystals is also of considerable importance. If the mixture is allowed to remain too quiescent the crystals are too large. The objection to large crystals is readily seen. They are much more liable to settle in the sand tables than the smaller ones, and are deposited much more readily from the pulp. If they are reduced in size by grinding in edge runners they lose their fibrous form, becoming broken transversely, and are of little more value than if the whole of the crystals were tabular shaped. The objection to too small crystals, whether tabular or fibrous, is that they are so readily drawn through the meshes of the machine wire and to a large extent lost.

If any iron finds its way into the mixture of bleaching powder and salt cake solution, it is for the most part carried down by the pearl hardening crystals, and the latter are often very discolored thereby. In order to correct this discoloration upon removal of the crystals in the last wash, a small amount of vitriol is added and a little potassium ferrocyanide solution. If this is done carefully, the prussian blue so formed corrects the yellowish tinge imparted to the crystals by the iron.

According to the foregoing equation, for every 100 lbs. of bleaching powder used about 75 lbs. of salt cake would be required, and 68 lbs. of calcium sulphate would be formed. But pearl hardening contains two molecules of water of crystallization, and is represented by the formula—

$$CaSO_4 + 2\,H_2O.$$

We should, therefore, expect to obtain 86 lbs. of dry crystals of pearl hardening.

Commercial pearl hardening is not, as a rule, sold as dry crystals, and the following is an analysis which represents a fair average composition:—

61.90	per cent.	calcium sulphate.
16.38	"	water of crystallization.
21.72	"	surplus water.
100.00	"	

Or—

78.28	"	pearl hardening.
21.72	"	surplus water.
100.00	"	

It may be reckoned then that after allowing for the water of crystallization, we may add one-fourth to equal the weight of the commercial article. We might then expect to obtain for each 100 pounds of bleaching powder treated 108 pounds of pearl hardening as put on the market. There are reasons why this quantity should not always be realizable, also why the above quantity of salt cake should require increasing in some cases. The above calculations are made on the assumption that every 100 pounds of bleaching powder contain 35 pounds of available chlorine. Thirty-five being the atomic weight of chlorine, bleaching powder is taken as 100. In order to complete the precipitation of the calcium as sulphate, it is necessary to have at least 10 per cent. more salt cake than is required by the equation.

The full amount of the pearl hardening is not realizable, as it is partially soluble in water and in the sodium hypochlorite solution formed. It can, however, be taken in the washing and draining of the crystals. The crop of crystals should amount to the weight of bleaching powder treated. Taking pearl hardening at £4 10s. per ton, and salt cake at £2, for each ton of bleaching powder treated we obtain 1 ton of pearl hardening, worth £4 10s., and require about 16 cwt. of salt cake, costing 32s. The cost of the treatment is small as compared with the difference between the cost of salt cake and value of pearl hardening obtained. The bleaching liquor obtained by this treatment (sodium hypochlorite) acts in many respects like ordinary bleaching solution (calcium hypochlorite).

It differs from the latter in that it does not form an incrustation of lime salts on the sides of the tanks and pails in which it is placed. Its bleaching action must also differ from bleaching powder, inasmuch as, when acted upon by the carbonic acid of the atmosphere, it does not form an insoluble compound.

Bleaching powder solution, when brought into contact with the fibre to be bleached, absorbs the same from the solution; and when brought into contact with the washing water, or with the atmosphere, the carbonic acid forms, with the lime salts, carbonate of lime or chalk in situ in the fibre. This is very much the case with some fibres. The ash of the bleached pulp is sometimes five times as great as the ash of the unbleached, in consequence of the assimilation of the soluble lime salts, afterward rendered insoluble and difficult of removal by the carbonic acid. It is also probable that cellulose treated with bleaching powder solution is much more liable to become rotten and converted into oxycellulose when exposed to the atmosphere, by reason of the more ready formation of hypochlorous acid, which, in turn, decomposes the water present, liberating nascent oxygen.

Bleaching powder solution must necessarily be alkaline, and the alkalinity is due to free lime. The sodium hypochlorite can be prepared almost neutral. It is often supposed that sodium hypochlorite is more sluggish in its action than bleaching powder, but the writer believes this to be due in most cases to the solution being prepared with soda ash and left too alkaline. In the efficiency of the chlorine or bleaching efficiency (*i. e.*, the bleaching effect produced by a given weight of chlorine) it appears to take the lead of bleaching powder solutions.

The foregoing remarks are not merely the outcome of laboratory experiments, but are based upon a large scale of working.

The easiest way of distinguishing between calcium and sodium hypocholorite is by blowing air expired from the lungs through each. The former develops a flocculent white precipitate and the latter remains clear.—*Clayton Beadle, in the Papermaker, London.*

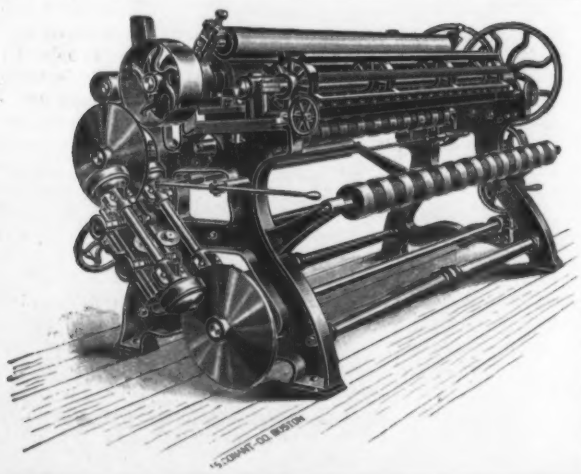
Artificial Cotton from Wood.

A Mr. Mittchell, according to *La Science en Famille*, has recently brought out an artificial cotton, which is made from the wood of pine, spruce or larch ingeniously defibrated, and then disintegrated and bleached with a hot solution of bisulphite of soda and chloride of lime. The pure cellulose obtained is treated with chloride of zinc, castor oil, caseine and gelatine, which give it body and cohesion. In this way there is made a paste which is passed through a perforated plate, as in the manufacture of macaroni, and is dried between steam heated cylinders. It now only remains to weave it in order to obtain a fabric that has a very presentable appearance and a certain amount of strength. It may be finished, dyed and printed like natural cotton, than which it is said to be much cheaper.—*Scientific American.*

The Rolland Paper Company, St. Jerome, P. Q., Canada, has got out a vest pocket diary, the paper in which is its "Superfine Linen Record," a fine grade of writing paper. This sample book is accompanied by a sample sheet on which is printed the report of the jury at the Columbian Exposition, whereby the highest award for this paper was granted.

The horse power of boilers as usually rated in trade is based on the amount of heating surface in flues or tubes and shell. The number of square feet of heating surface for a horse power varies largely with different kinds of boilers and with different makers; 10 to 12 square feet for water tube boilers, 12 to 16 square feet for tubular and locomotive forms, and from 8 to 12 square feet for flue boilers are about the range of nominal horse power. The actual output of horse power which may be realized depends upon the steam pressure and the economy of the engine; so that the actual work of a boiler may be two or three times its nominal horse power, as the steam pressure may range from 50 to 150 pounds and the engine consume from 30 to 15 pounds of steam per horse power per hour.

Warren Webster & Co., Camden, N. J., specialists in examining steam plants where economy in fuel is desired, by utilizing the waste exhaust steam, report considerable activity in their business, owing to the better appreciation of their manufactures. Among the recent contracts for the Webster "Vacuum" feed water heater and purifier they mention the following: Baltimore and Ohio Tunnel Plant, Baltimore, Md., 3,000 horse power; Westinghouse Electric and Manufacturing Company, Brinton, Pa., 2,500 horse power; Pennsylvania Bolt and Nut Company, Lebanon, Pa., 1,000 horse power; Berwick Electric Light Company, Berwick, Pa., 250 horse power; Whitall, Tatum & Co., Millville, N. J., 400 horse power; Baker Chain and Wagon Iron Manufacturing Company, Allegheny City, Pa., 250 horse power, The Samuel Winslow Skate Manufacturing Company, Worcester, Mass., 400 horse power; Cincinnati Street Railway Company, Cincinnati, Ohio, 1,000 horse power; Arapahoe Street Railway Company, Denver, Col., 150 horse power; Erie Chemical Company, Erie, Pa., 150 horse power; Pittsburgh Tin Plate Company, Kensington, Pa., 400 horse power; City of Boston, one special machine; Snow Steam Pump Company, Buffalo, N. Y., 100 horse power; Henry Wanklin, Roxborough, Pa., 60 horse power; Fairfield Paper Company, Fairfield, Mass., 600 horse power; Chicago Edison Company, North Side Station, Chicago, Ill., 2,000 horse power; the Johnson Company, Lorain, Ohio, 3,000 horse power; Philadelphia Gas Company, two 600 horse power, one 500 horse power. In a number of these contracts other equipments of feed water heaters were removed. Numerous orders were also received for the Webster separators and the Williams' vacuum system of steam heating.



THE "HORNE" FRICTION CUTTER

IS IN ADVANCE OF ANY CUTTER IN USE TO-DAY.

WE HAVE EIGHT RUNNING IN ONE FINISHING ROOM.

AFTER USING ONE SEVEN MONTHS **A CUSTOMER SAYS:** *"You have the Perfect Cutter. We are sure it will save its cost in one year in the saving of waste paper alone."*

THE J. H. HORNE & SONS CO., LAWRENCE, MASS., U. S. A.,
MANUFACTURERS OF PAPER MILL MACHINERY.

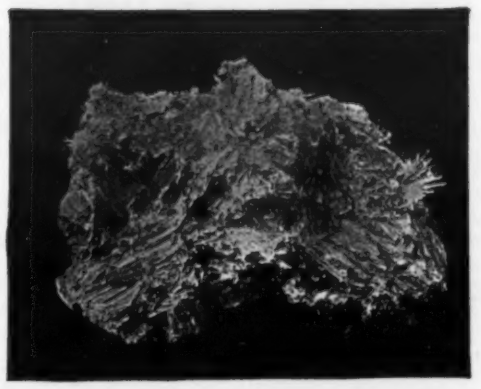
THE GARDNER PULP CO.,

GOUVERNEUR, N. Y.

MANUFACTURERS OF

Asbestos Pulp and Fibrous Talc

FOR PAPER MAKERS.



THE GOTHAM NOISELESS SCREEN.

WE HAVE SOLD A FEW SCREENS, AS FOLLOWS:

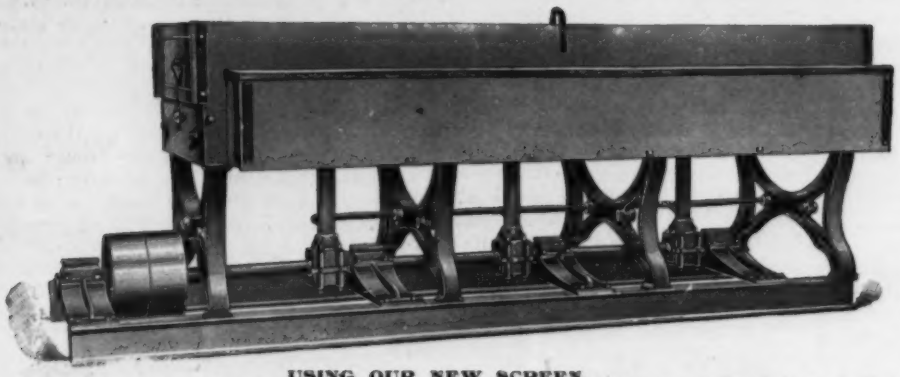
HOUSES.	CITY AND STATE.	SCREENS.	ORDERS
The Rumford Falls Paper Co.	Rumford Falls, Me.	20	..
The Niagara Falls Paper Co.	Niagara Falls, N. Y.	18	..
High Falls Sulphite Pulp Co.	Potsdam, N. Y.	10	..
The Empire Pulp Co.	Black River, N. Y.	1	..
Globe Paper Co.	Brownville, N. Y.	2	..
Union Pulp Co.	Carthage, N. Y.	1	..
Frontenac Paper Co.	Dexter, N. Y.	1	..
Leonard & Gilmore	Dexter, N. Y.	1	..
Outterson Paper Co.	Brownville, N. Y.	3	3
Oswego Falls Paper Co.	Fulton, N. Y.	4	3
Gouverneur Wood Pulp Co.	Gouverneur, N. Y.	4	4
Knowlton Paper Co.	Watertown, N. Y.	1	..
Ontario Paper Co.	Watertown, N. Y.	2	2
Herkimer Paper Co.	Lyons Falls, N. Y.	4	3
G. H. P. Gould	Port Leyden, N. Y.	1	..
Gould Paper Co.	Port Leyden, N. Y.	2	2
Racquette River Pulp Co.	Colton, N. Y.	3	..
Sparks Manufacturing Co.	Hamburg, N. J.	1	..
Charles Callender	Glendale, Mass.	2	2
Merrimac Paper Co.	Lawrence, Mass.	2	2
Connecticut Paper Co.	Holyoke, Mass.	1	..
Carew Manufacturing Co.	South Hadley Falls, Mass.	2	2
Rice, Barton & Fales	Worcester, Mass.	3	2
Eaton, Dikeman & Co.	Lee, Mass.	1	..
Fall Mountain Paper Co.	Bellows Falls, Vt.	12	7
Wyman, Flint & Sons	Bellows Falls, Vt.	3	2
National Metal Edge Box Co.	Readesboro, Vt.	1	..
Glen Manufacturing Co.	Berlin Falls, N. H.	6	3
Wilder & Co.	Ashland, N. H.	1	..

HOUSES.	CITY AND STATE.	SCREENS.	ORDERS
Umbagog Pulp Co.	Livermore Falls, Me.	2	..
Bangor Paper Co.	Bangor, Me.	4	..
Jay Paper Co.	Jay, Me.	1	..
White & Wells	Waterbury, Conn.	2	2
St. Cloud Paper Co.	St. Cloud, Minn.	1	..
Columbia Paper Co.	Buena Vista, Va.	2	..
Anderson Paper Co.	Anderson, Ind.	3	2
Kaukauna Paper Co.	Kaukauna, Wis.	1	..
Willamette Pulp and Paper Co.	Oregon City, Ore.	9	4
California Paper Co.	Agnews, Cal.	1	..
Tennessee Pulp Co.	Memphis, Tenn.	1	..
Estate of Richard Carter	Glendale, N. Y.	1	..
Charles Wackerhagen	Canaan Four Corners, N. Y.	1	..
Smeallie, Phillips & Co.	Amsterdam, N. Y.	1	..
O. E. Martin	Norwood, N. Y.	1	..
Jefferson Paper Co.	Black River, N. Y.	2	2
St. Lawrence Paper Co.	Dexter, N. Y.	3	3
Payne & Blinn	Chatham, N. Y.	1	..
M. M. Pillsbury	Napanoch, N. Y.	1	..
Victoria Paper Co.	Fulton, N. Y.	2	2
Philip McGuire	Forestport, N. Y.	1	..
Hartland Paper Co.	Middleport, N. Y.	1	..
Standard Pulp Co.	Jennie's Falls, N. Y.	3	..
Bacon Paper Co.	Lawrence, Mass.	1	..
Watertown Paper Co.	Watertown, N. Y.	3	3
Alpena Sulphite Pulp Co.	Alpena, Mich.	4	4
Hollingworth & Whitney	Winslow, Me.	2	2
Fulton Paper Co.	Fulton, N. Y.	2	2

AND OTHERS.

BROWNVILLE IRON WORKS, Brownville, N. Y. ALSO MANUFACTURERS OF Wet Machines, Centrifugal Pumps, &c.

TICONDEROGA MACHINE CO., TICONDEROGA, N. Y.



USING OUR NEW SCREEN.

Glen Manufacturing Co., Berlin Falls, N. H., 13; Barclay Fibre Co., Sangerties, N. Y., 5; Katahdin Pulp and Paper Co., Lincoln, Me., 10; Haverhill Paper Co., Haverhill, Mass., 2; The J. & J. Rogers Co., Ausable Forks, N. Y., 10; New York and Pennsylvania Co., Johnsonburg, Pa., 1; H. J. Roberts, Birmingham, Conn., 1; Ticonderoga Pulp and Paper Co., Ticonderoga, N. Y., 4; Piscataquis Falls Pulp and Paper Co., Enfield, Me., 2

USING OUR OLD SCREEN.

Piscataquis Falls Pulp and Paper Co., Enfield, Me., 12; Howland Falls Pulp Co., Howland, Me., 10; Penobscot Chemical Fibre Co., Great Works, Me., 4; Willamette Pulp and Paper Co., Oregon City, Ore., 1; Bangor Pulp and Paper Co., Basin Mills, Me., 2; Kane's Falls Pulp Co., Fort Ann, N. Y., 2; Westmoreland Paper Co., West Newton, Pa., 6; Dexter Sulphite Pulp and Paper Co., Dexter, N. Y., 3; Otis Falls Pulp Co., Livermore Falls, Me., 3; Michigan Sulphite Co., Fort Huron, Mich., 2; Singerly Pulp and Paper Co., Singerly, Md., 1; Ticonderoga Pulp and Paper Co., Ticonderoga, N. Y., 7.

USING OUR BARKERS.

The J. & J. Rogers Co., Ausable Forks, N. Y., 4; Katahdin Pulp and Paper Co., Lincoln, Me., 4; High Falls Sulphite Pulp and Mining Co., Potsdam, N. Y., 2; Glen Manufacturing Co., Berlin Falls, N. H., 4; Oswego Falls Pulp and Paper Co., Fulton, N. Y., 1; Treadwells Mills Pulp and Paper Co., Plattsburgh, N. Y., 3; Shenandoah Pulp Co., Harper's Ferry, W. Va., 3; Miller Bros. & Co., Glen Miller, Ont., Canada, 1; Piscataquis Falls Pulp and Paper Co., Enfield, Me., 7; Kane's Falls Pulp Co., Fort Ann, N. Y., 1; Manufacturing Investment Co., Madison, Me., 9; Umbagog Pulp Co., Livermore Falls, Me., 2; Moosehead Pulp and Paper Co., Solon, Me., 1; Bennington Falls Pulp Co., Middle Falls, N. Y., 1; Saranac River Pulp and Paper Co., Cadyville, N. Y., 1; Smith & Martin, Plattsburgh, N. Y., 1; Otis Falls Pulp Co., Livermore Falls, Me., 1; Hollingsworth & Whitney Co., Waterville, Me., 3; Gilbert & Bell, Waterford, N. Y., 1; Laurentide Pulp Co., Montreal, Canada, 1; Hudson River Pulp and Paper Co., Palmer's Falls, N. Y., 1; Battenkill Paper Co., Greenwich, N. Y., 1; Ticonderoga Pulp and Paper Co., Ticonderoga, N. Y., 1.

MANUFACTURERS OF

COMPOUND AUTOMATIC HIGH SPEED STEAM ENGINES,
PAPER MILL AND POWER TRANSMITTING MACHINERY.

SEND FOR CATALOGUE AND BLUE PRINTS.

WE LEAD, AND OTHERS FOLLOW! Over 200 "SUCCESS" Screens in use on all kinds of stock.

"THE SUCCESS" LEADS THEM ALL.

READ THE FOLLOWING LIST OF USERS AND BE CONVINCED:

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The Hudson River Pulp and Paper Co., Palmer's Falls, N. Y.	**50**	The Worthy Paper Co., Mittineague, Mass.	1
The Burgess Sulphite Fibre Co., Berlin Falls, N. Y.	12	Chester Paper Co., Huntington, Mass.	1
Marinette and Menominee Paper Co., Marinette, Wis.	8	Bayless Paper Co., Binghamton, N. Y.	2
Combined Locks Paper Co., Combined Locks, Wis.	4	Wagman & Thorp Co., Fort Miller, N. Y.	2
Wilkinson Bros. & Co., Derby, Conn.	5	Moore & Thompson Paper Co., Bellows Falls, Vt.	1
Sandy Hill Power and Pulp Co., Sandy Hill, N. Y.	4	Allen Bros. Co., Sandy Hill, N. Y.	1
The Riverside Paper Co., Holyoke, Mass.	**4**	Hudson River Water Power and Paper Co., Mechanicsville, N. Y.	1
The Holyoke Paper Co., Holyoke, Mass.	1	Ohio Paper Co., Niles, Mich.	1
Franklin Paper Co., Holyoke, Mass.	1	Otis Falls Paper Co., Livermore Falls, Me.	19
Chemical Paper Co., Holyoke, Mass.	2	J. D. Mulrenan, Hadley, N. Y.	2
Beebe & Holbrook Co., Holyoke, Mass.	2	Saranac River Pulp and Paper Co., Cadyville, N. Y.	3
A. H. Hubbard Co., Norwich, Conn.	2	Herkimer Paper Co., Herkimer, N. Y.	3
		Winnipisiogee Paper Co., Franklin, N. H.	2
		Jas. Ramage Paper Co., Monroe Bridge, Mass.	1

Wilder & Co., Olcott Falls, Vt.	3
Syms & Dudley Paper Co., Watervliet, Mich.	2
The Little Chute Pulp Co., Little Chute, Wis.	6
Niagara Falls Pulp and Paper Co., Niagara Falls, N. Y.	1
Kimberly & Clark Co., Kimberly, Wis.	3
Atlas Paper Co., Appleton, Wis.	1
Shattuck & Babcock Co., De Pere, Wis.	3
The Wanaque River Pulp and Paper Co., Wanaque, N. J.	2
Nekoosa Paper Co., Nekoosa, Wis.	7
Niagara Falls Paper Co., Niagara Falls, N. Y.	2
The Maritime Sulphite Fibre Co., Chatham, New Brunswick, Canada	4
The Uncas Paper Co., Norwich, Conn.	1
Sandy Hill Pulp Co., Sandy Hill, N. Y.	1
Kimberly & Clark Co., Neenah, Wis.	3

MADE IN THREE SIZES: SIX, EIGHT AND TEN PLATES.

Wood Pulp Grinders, Improved Patterns.
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FRICTION PULLEY AND MACHINE WORKS, SANDY HILL, N. Y.,

SOLE MANUFACTURERS OF THE "SUCCESS" SCREEN.

AGALITE PULP

As now manufactured under our improved processes has no competitor as a filler, either for News or

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GIVES the brightest color and most beautiful finish in all classes of paper as it contains **no moisture,** and its retention in papers being nearly double that of other fillers, it is by far the **cheapest.**

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NEW YORK.

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AMERICAN TURBINE.

FROM SIX TO SIXTY-SIX INCHES DIAMETER.
Are in practical operation under heads from 4 to 100 feet head; are strong, durable and give high efficiency.

BEATING ENGINES
Cast Iron or Wood Tubs.
Made heavy and strong, double lightered, with well made Cone Washers.

DAYTON GLOBE IRON WORKS CO.,
Successors to
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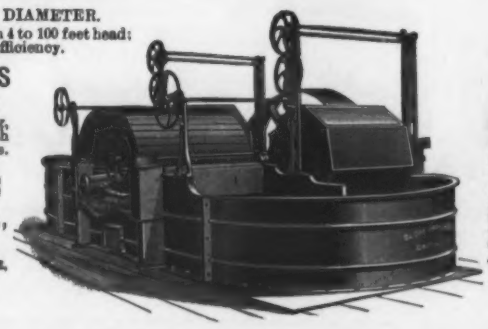

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Superior in construction to any made. Capacity, 4,000 to 6,500 pounds extra good pulp per day, dry weight, per each grinder. Hydraulic feeds, fine adjustments; strong and reliable in every way. Two and three pocket machines.

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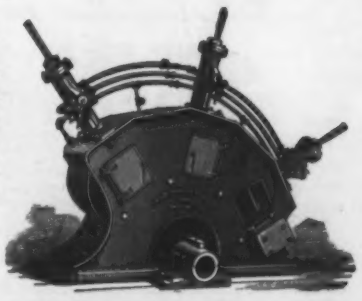
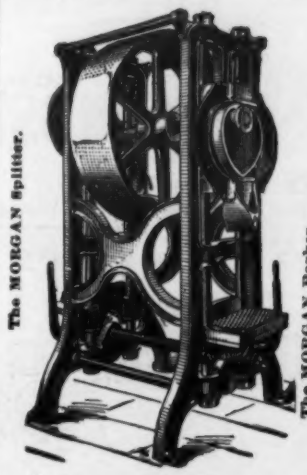


APPLETON MACHINE COMPANY,

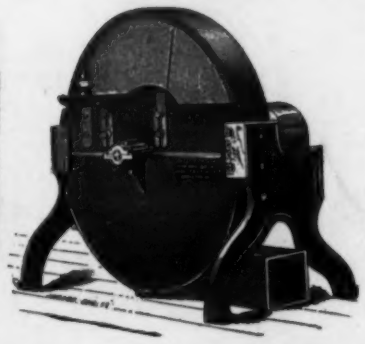
APPLETON, WIS.,

—MANUFACTURERS OF—

The New Frambach and Badger Pulp Grinders,



The MORGAN Splitter.



The MORGAN Barker.

Wood Barkers,
Splitters,
Screens,
Bolt Sawing Machines,
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Chippers,
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Wet Machines.

GOODRICK Screen.

J. & W. JOLLY, MANUFACTURERS OF

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BOTH VERTICAL and HORIZONTAL.

PAPER MILL MACHINERY.

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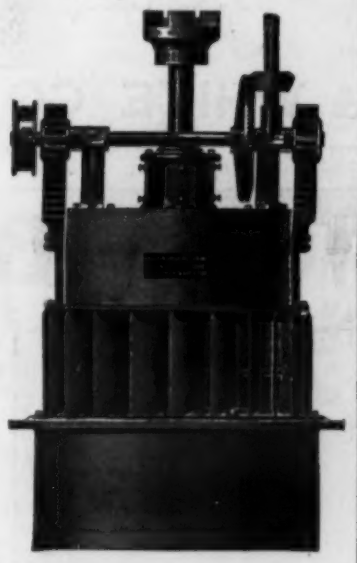

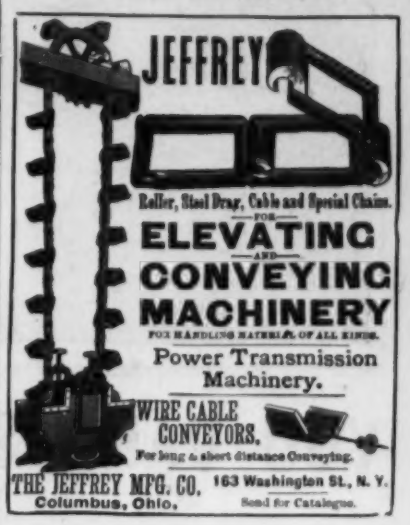
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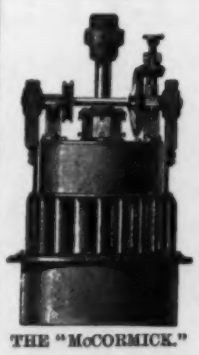
VERTICAL OR HORIZONTAL.



THE "McCORMICK."

The McCORMICK Turbine gives more power per diameter with a higher percentage of useful effect from the water used than any other water wheel heretofore made. All sizes, both right and left hand, tested in the Holyoke testing flume.

The SUCCESS Turbine, long and favorably known in the paper trade as a first-class water wheel, possesses valuable features found in no other turbine, and gives a high percentage of useful effect from the water used.

THE McCORMICK and SUCCESS TURBINES are especially adapted for driving Paper and Pulp Mills and are extensively used by the largest manufacturers in the United States and Canada. Parties using wheels which are unsatisfactory and those contemplating the improvement of powers will find it to their interest to confer with me, as I am willing to guarantee results where others have failed, no matter what make of turbines has been tried.

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Heavy Power Transmitting Machinery a Specialty.

S. MORGAN SMITH, York, Pa.

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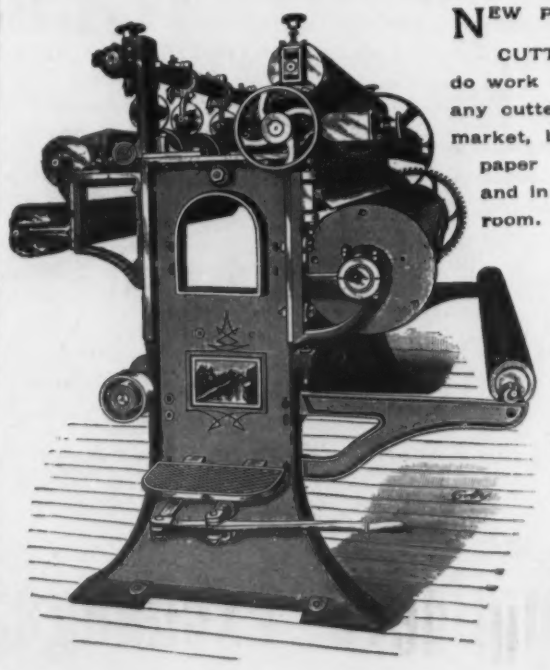

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FOURDRINIER AND CYLINDER MACHINES.

Very Substantial and Convenient Designs, Embodying all Late Desirable Improvements.

IRON AND WOOD TUB BEATING ENGINES.

Wet Machines, Rag Cutters, Duplex and Triplex Stuff and Suction Pumps, Double Suction Water Pumps, Etc., Etc.

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HARTFORD, CONN.

—Thorough Inspection.—
Insurance against loss or damage to property; also against loss of life and injury by Steam Boiler Explosions.

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W. G. LIMEBURGH & SON,	Bridgeport, 2 Sanford Building,
BURWELL & BRIGGS,	Cleveland, 206 Superior street
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PETER F. PESCUD,	New Orleans, 188 Gravier street.

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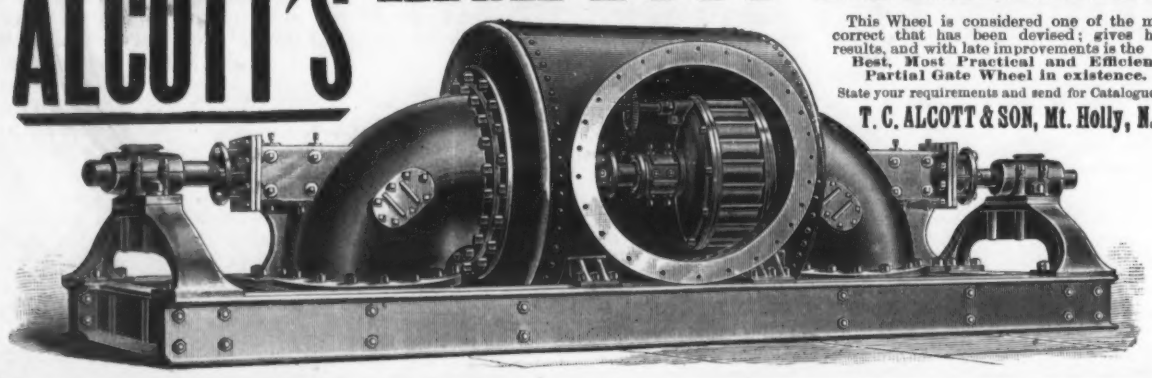

This Wheel is considered one of the most correct that has been devised; gives high results, and with late improvements is the **Best, Most Practical and Efficient Partial Gate Wheel in existence.**

State your requirements and send for Catalogue to

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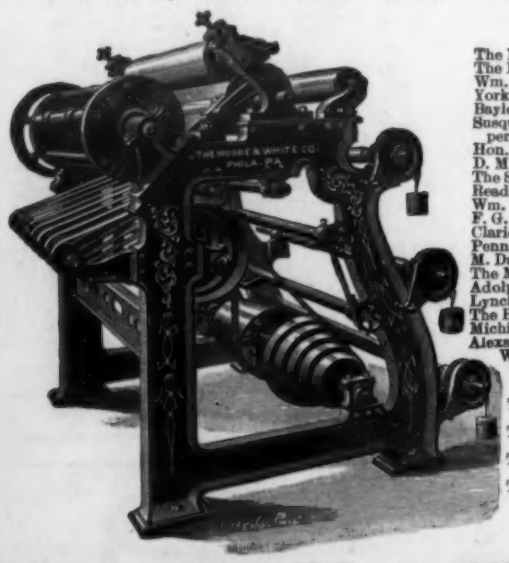
THE MOORE & WHITE PAPER CUTTER.

CONTINUOUS FEED.

Cuts Perfectly Even and Square. Easily Changed from Sheets to Rolls. Built in All Sizes and Fully Guaranteed.



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Clarion Pulp and Paper Co.,	1
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The Morrison & Cass Paper Co.,	1
Adolph Segal,	1
Lynchburg Pulp and Paper Co.,	1
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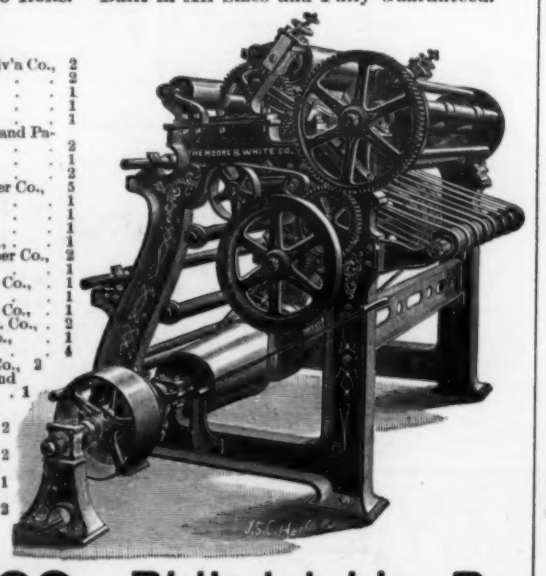
Michigan Sulphite Fibre Co.,	1
Alexander Balfour & Sons,	4
Wanaque River Paper Co.,	2
Willamette Pulp and Paper Co.,	1
The Morrison & Cass Paper Co.,	2
The Andrew L. Fennessey Co.,	2
The Antietam Paper Co.,	1
The West Virginia Paper Co.,	2



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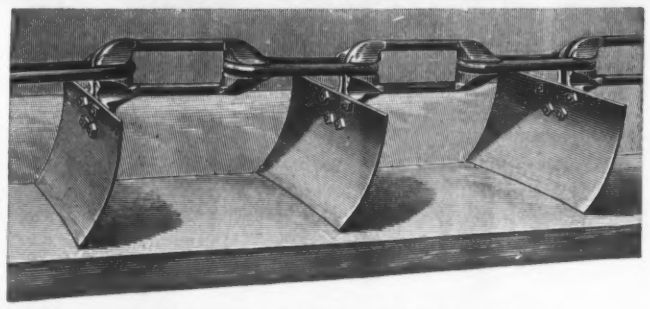

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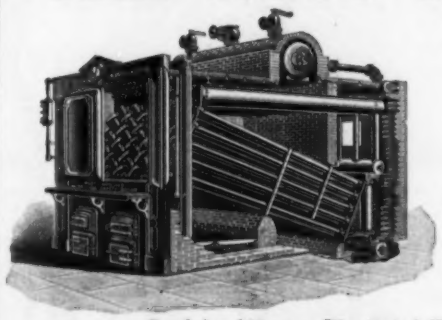

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Uncultivated Bast Fibres of the United States.

By Charles Richards Dodge.*

COLORADO RIVER HEMP.

(Continued.)

Foreign Leguminous Fibre Plants.

While treating of American species belonging to the *Leguminosæ* it may be well to consider a few species which are of commercial importance in the Old World. *Sesbania aculeata* produces the well-known *Dunchee* fibre of India, which is highly esteemed for the manufacture of ropes and cordage, and is regarded as a coarse substitute for hemp. The plant is a native of the Malabar coast, and also grows in China. In Bengal it is called *Jayunti.* The plant grows to a height of 6 to 10 feet; the fibre is long, but much coarser and harsher than hemp. Bengalese fishermen make the drag ropes of their nets of this substance, on account of its strength and durability. It is generally grown in wet soil, requiring requiring little preparation, as the plant is hardy and of rapid growth. It is sown at the rate of 30 pounds of seed to the acre. In Northwest India, during the rainy season, it springs up in rice fields and other wet, cultivated lands. A peculiarity of the fibre is its remarkable contractibility, as from contraction alone ropes made of it are said to be able to carry away the mainmast of a ship.

Crotalaria juncea.—Early in 1893 the department imported a small quantity of seed of the well-known sunn hemp plant of India. It came too late to distribute to Southern localities for experiment, but a little of the seed was planted in this locality. It made a fair growth, and early came into blossom; but the growth was small, and the fibre not fully matured at the end of the growing season, and the experiment seemed to demonstrate that the plant is not suited to the latitude of the District of Columbia. The seed has been distributed to fifteen Southern stations and localities for test the present year.

Its Indian names are *Chun-pat* and *Chumese;* Sanscrit name, *Sana;* the fibre is known as sunn (or san hemp), Taag, Cankanee hemp, Indian hemp, brown hemp and Madras hemp. Sunn hemp is "probably one of the earliest of the distinctly named fibres, as we find, in the Hindoo 'Institutes of Menu,' that the sacrifical thread of the *Cshatriya*, or Rajpoot, is directed to be made of *sana*." The plant producing this fibre is a shrub, growing from 8 to 12 feet high, with branching stem marked with longitudinal furrows. When cultivated it is sown quite close, at the beginning of the rainy season, in order that the plants may grow tall and thickly together—the natives say the thicker the better, so as to prevent the air passing through it—80 to 100 pounds of seed being used to the acre, and some even sow a larger quantity. In some portions of India two kinds are cultivated, one sown in May and June, when the first showers fall, and the other in October, though in quality they are the same. "That sown in June is cut in August and September, and the other about April."

In the Dictionary of the Economic Plants of India there is a full account of the treatment of the plant in cultivation, from which extracts are reproduced:

In Kolaba it is sown in November, after the rice is harvested, and the stalks are uprooted in March. In Kolhapur it is sown in August, and harvested in December by being cut when the plants are full grown. In Poona it is sown in July, and ripens in October. In the central provinces and the northwestern provinces it is a *kharif* crop, being sown with the advent of the rains; but in Bengal it is sown a little earlier, namely, from April 15 to June 15; in Madras the sowings take place even still earlier. In the experiments performed at the Saidapet farm Madras sunn was shown on February 2. In the *Ain i-Akbari* the plant is described as bearing its yellow flowers in spring, a fact which Mr. Hem Chunder Kerr (writing of Bengal) expresses some astonishment at, since "it now flowers in the the rainy and cold seasons." Roxburgh says it is sown in Bengal in May and June, and flowers by August—that is to say, toward the end of the rainy season. In the last agricultural report of Bengal it is stated that the crop is harvested from August 15 to September 15.

It requires a light but not necessarily rich soil, and it cannot be grown on clay. It is therefore sown on the high sandy lands less suited for the more important crops. Wisset remarks that clay soils are injurious, but that on a rich soil the fibre is of a coarser quality than that grown on dry high situations.

The opinion prevails all over India that high cultivation is not necessary for sunn hemp. Of Kolaba it is said: "The soil is roughly plowed twice, and the seed sown broadcast." In Bengal "the seeds are sown broadcast. It is necessary to have the plants grown thick, otherwise they become bushy and coarse, and give very inferior fibres." "There is nothing more required after sowing till harvest time." In the northwestern provinces "two plowings at most are given, and the seed is sown broadcast and plowed in. It germinates quicker than any other crop, the seedlings showing above ground within twenty-four hours after being sown. Irrigation, even when necessary, is rarely given, and no weeding is required." In the experiments made in Madras, to which reference has already been made, it was apparently sown in drills. "The land was prepared for an ordinary crop by plowing and harrowing until it was reduced to a proper state, and the seed was then sown with the drill in rows 9 inches apart at the rate of 12 pounds per acre;" but in the northwestern provinces about 1 maund (or 80 pounds) to the acre is general. In Bengal 20 seers (40 pounds) to the *bigha* (three-fourths of an acre) is the customary amount of seed. Roxburgh states that from 80 to 100 pounds weight to the acre were used in his time. The plants should not be more than 2½ to 3 inches apart each way, and hence thick sowing is desirable.

In most cases the plants are pulled up by the roots; in others the stems are cut with a sickle close to the ground. Of the Poona district, Bombay, it is stated that the crop is "left standing for about a month after it is ripe, that the leaves, which are excellent manure, may fall on the land." It is not clear whether the crop is left on its roots—that is to say, not reaped—or whether it is cut and stacked on the fields; the latter more probably. The greatest difference of opinion prevails as to whether the cut crop should be dried before being steeped, or, like jute, be carried at once to the retting tanks. But even with jute some cultivators dry the plants sufficiently to allow of the leaves being rapidly stripped, since these are supposed to injure the color of the fibre if allowed to rot in the water of the tank. With regard to sunn hemp the general rule may be almost safely laid down that in moist regions, like Bengal, rapid submersion is preferred, and in dry regions, like Madras, stacking the crop is practiced. Roxburgh from actual experiments arrived at the opinion that "steeping immediately after the plant is pulled is the best, at least in Bengal during the rains, for then it is very difficult to dry it, and the fibre becomes weakened and the color injured."

The average yield of fibre is about 640 pounds per acre. In preparing the fibre in the Lucknow district the stalk is cut near the root when the plant begins to flower, tied in large bundles and immersed in water, the natives putting small weights upon it (generally mud) to prevent it being carried away. After remaining in water from four to eight days it is withdrawn, taken by handfuls, beaten on a piece of wood or stone and washed till quite clean and the cuticle and leaves entirely removed." The woody portion is separated by further beating and shaking when perfectly dry. At Commercolly the plants are pulled, tied in bundles and are then left standing in water on their roots to the depth of several inches. This allows the fibre to obtain the right degree of firmness without becoming parched and dried by the sun. Oversteeping causes the bark to separate very easily, but weakens the fibre. Dr. Roxburgh found "no advantage, but the reverse, by drying the plant after maceration and before the bark is removed," which is the mode practiced in regard to flax and hemp. After the fibre has been separated it is thoroughly washed, by repeatedly squeezing and ringing the water out of it, after which it is hung upon lines. When dry the fibre is separated a little, or combed with the fingers, and then bundled for market.

In another account it is stated that small pools of clear water, well exposed to the sun's beams, seem best suited for steeping, because heat hastens maceration, and consequently preserves the strength of the fibres, while clean water preserves their color.

Having discovered that the necessary degree of retting has been attained, the cultivator, standing in the water up to his knees, takes a bundle of the stems in his hand, and threshes the water with them until the tisue gives way and the long, clean fibres separate from the central canes. According to some writers, the retting stems, after being partially washed, are taken out of the water and placed in the sun to dry for some hours before being beaten out in the way described. This practice, while it is followed in some parts of the country, is condemned in others as injurious, or at least as a useless delay.

The drying is usually accomplished by hanging the fibre over bamboos to be dried and bleached by the sun. Naturally, in this country, such primitive processes as are described above would never be resorted to. They are interesting, however, and some valuable points may be gained from the experience.

When the plant first began to attract attention among Europeans it was believed the Hindoo method of treatment could be improved upon with favorable results, but much opposition was raised by the natives, who declined strenuously going out of the beaten track of their fathers. It was found to be a much more delicate plant than hemp, and consequently could not be prepared after the European methods without a modification of the processes.

As to tenacity, experiments made with fibre grown and prepared under the supervision of the agent of the East India Company gave a result which, when compared with the best Russian hemp, was in the proportion of 4 to 6, sunn being the weaker. Royle states that while "some recent sunn broke with 170 pounds strain, when Russian hemp broke with 160 pounds, the former may not bear the same degree of twisting as the latter." In Dr. Wight's experiments with sunn, cotton rope, hemp and coir they were found to stand a strain of 407, 346, 290 and 224 pounds respectively. The fibre is used principally for ropes and cables, though in India it is manufactured into cordage, nets, sack cloth, twine and paper. The finest dressed and most carefully prepared fibre is made into canvas of great durability.

The Jubbulpore hemp (*Crotalaria tenuifolia*) has been considered by some authors to be a variety of *C. juncea*, and is said to be superior to Russian hemp (*Cannabis sativa*), breaking approximately at a strain of 95 pounds for the first named to 80 pounds for the latter. It is 4 to 5 feet in length, and resembles best Petersburg hemp, compared with which Royle considers it equal, if not superior. Although the cultivation is limited, it is regularly grown for its fibre, which is used for the same purpose as sunn.

There are several other species of Leguminous fibre plants, which grow in the tropics, and in South America and India. They are generally climbers. In the museum are two large coils of rope made from the Chain Creeper (*Bauhina splendens*) that were received from Brazil and Venezuela. In the last named country the tree is called *Bejuco de Cadena.* Dr. Ernst, of the Venezuelan Commission, says the plant is common in the hot, damp forests. "The stems are extremely flexible and tough, so they can be used as cords, being more durable than iron nails, which in the damp atmosphere rust very soon and give way." The ribbon-like strip is very dark—almost black—and the cordage made from it is of the very coarsest description, the entire bark often, as peeled from the tree entering into its structure unbroken. The two cables are about an inch each in diameter. *B. racemosa*, known as the ("Maloo Climber," abounds in the valleys of the Himalayas. *B. scandens* is an Indian species about as strong as sunn hemp.

(To be continued.)

*Report to U. S. Department of Agriculture.

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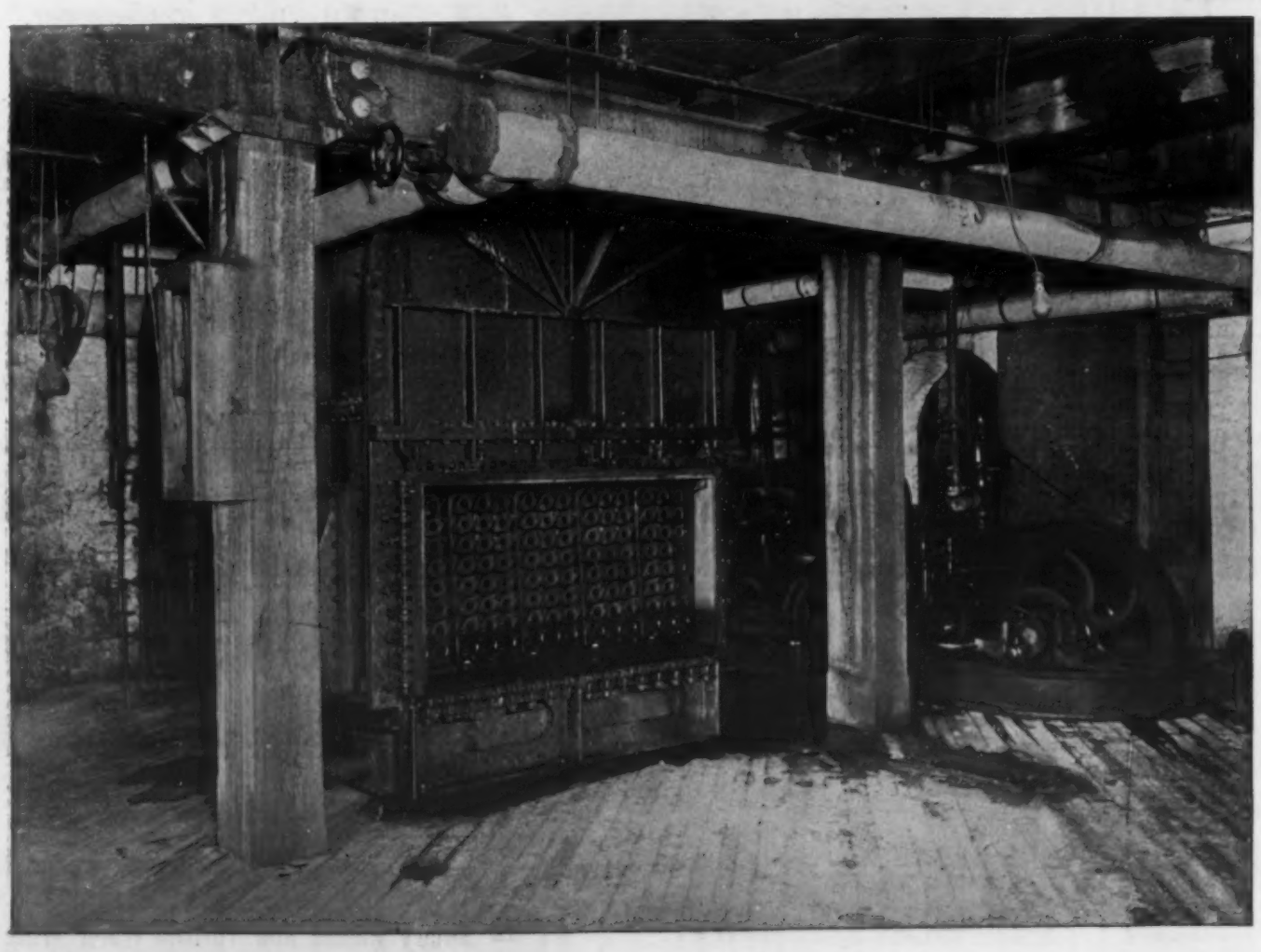

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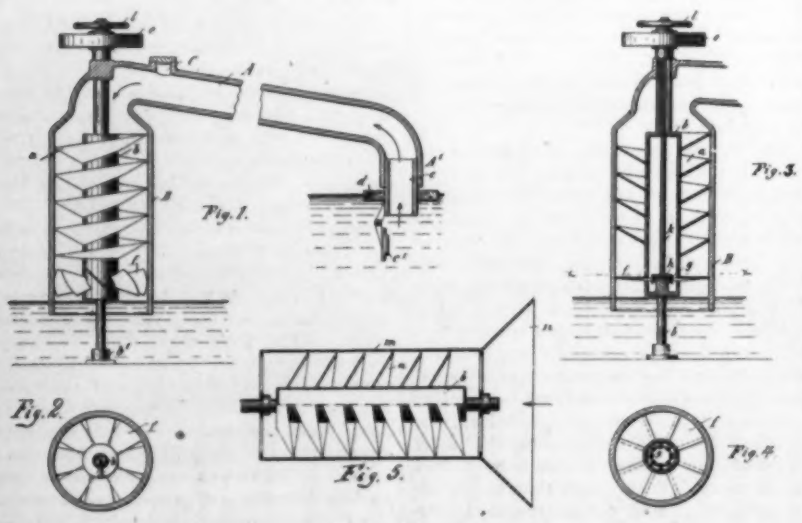
The invention herewith illustrated has been designed to utilize the driving power of water by the use of a screw arranged upon a central axis, the rotation of the screw being effected by the water.

Figure 1 is a sectional view of the motor with the screw in elevation. Fig. 2 is a cross section through the casing, showing the blades, the section being taken just above the axle *b* of Fig. 1, with the screw blades *a* omitted. Fig. 3 is a vertical section through the casing and screw. Fig. 4 is a section on line *x*—*x* of Fig. 3. Fig. 5 is a view of the screw arranged horizontally.

The propeller or screw *a* with many threads, preferably made of iron, is disposed upon a central axle, *b*. At the entrance extremity A′ of the siphon A, of appropriate size and shape, a socket, *c*, is disposed, the lower extremity of which is provided with a closing valve, *c*′. The socket is provided with a wooden edge, *d*, serving as a float, this lower end of the socket being beneath the surface. The other extremity B of the siphon is enlarged to form a casing for the screw. The axle *b* is provided with foot support *b*′, and at its top with a pulley, *e*,



WATER MOTOR.

for setting in motion the machinery to be driven. In the lower extremity of the siphon there is a series of blades, *f*, the tenons of which are provided with conical wheels, *g*, in the interior of the axle *b*. These are simultaneously actuated by the driving apparatus *h*, which is fixed upon the shaft *k* in the interior of the axle *b*. If the driving apparatus *h* is turned by means of the hand wheel *l*, situated at the upper part, the blades *f* will move accordingly, and will to a greater or less extent close the opening in the casing B. The hydraulic screw can be disposed so high in the casing B that the water underneath can never have any influence upon its working. Thereby the full force of the falling water can be used.

For actuating the motor the two siphon extremities are closed and the siphon is filled with water through the entrance socket *c*. If the siphon extremities are then opened the water will run through the siphon in the direction of the arrows, and will cause the screw to revolve.

Fig. 5 shows a horizontal disposition of the hydraulic screw for utilizing the driving power of running water. The absolute gravity of the screw is reduced by the hollow and air tight axle *b*, and the friction of the journals is decreased; the hydraulic wheel floats with a certain depth of immersion. The screw can also be disposed in a cylinder shaped casing, *m*, which is provided with a funnel shaped receiver, *n*, for the water.

Internal Rusting of Boilers.

In a recent German paper on this subject the causes of rusting are first considered, the most important being the introduction of air with the feed water. By placing the feed pipe so that the feed water enters the boiler near the low water level, and thus meets the hottest layers of water, the air is quickly expelled and passes out of the boiler with the steam, unless pockets exists in which it can accumulate. Such pockets are sure to rust rapidly; and it is recommended that they should be covered internally with a protecting paint or filled up with cement, provided they are not subjected to external heating. It is also recommended that the feeding should be completed before the withdrawal of steam ceases for the day, in order that the water left standing in the boiler over night may be as free from air as possible. An efficient circulation is also a means of preventing rusting, as it hinders the formation of air bubbles on the shell, which, if they remain clinging to it, cause rusting.

The author is of the opinion that faulty construction is more often the cause of internal rusting than unfavorable conditions of working, and summarizes the means of preventing rusting as follows: First, while the boiler is working—(1) removing air from the feed water before it enters the boiler; (2) removing air from the water while in the boiler, and preventing its accumulation in pockets, &c.; (3) addition of chemicals to the feed water; (4) protective coatings applied to the inside of the shell. Second, while the boiler is standing idle: (1) removing all moisture from the boiler, (*a*) by blowing it off while hot, (*b*) by producing an air current through it, (*c*) by placing hygroscopic bodies inside; (2) direct protection of the shells by painting with tar, varnish, &c., by covering with protective paints, and such an alkaline coating as milk of lime; (3) protecting the shells from the varying temperatures by keeping the draft in the flues constant, so as to prevent moisture alternately depositing and evaporating on the shell; (4) protecting the shell by completely filling the boiler with water from which all air has been expelled.—*Power.*

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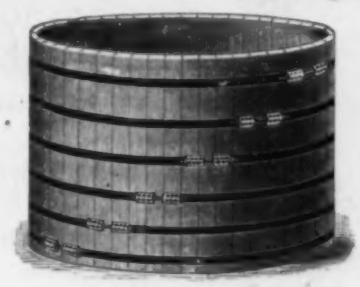

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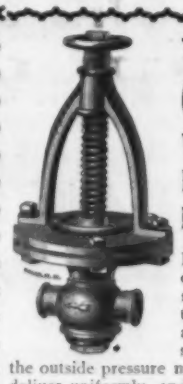

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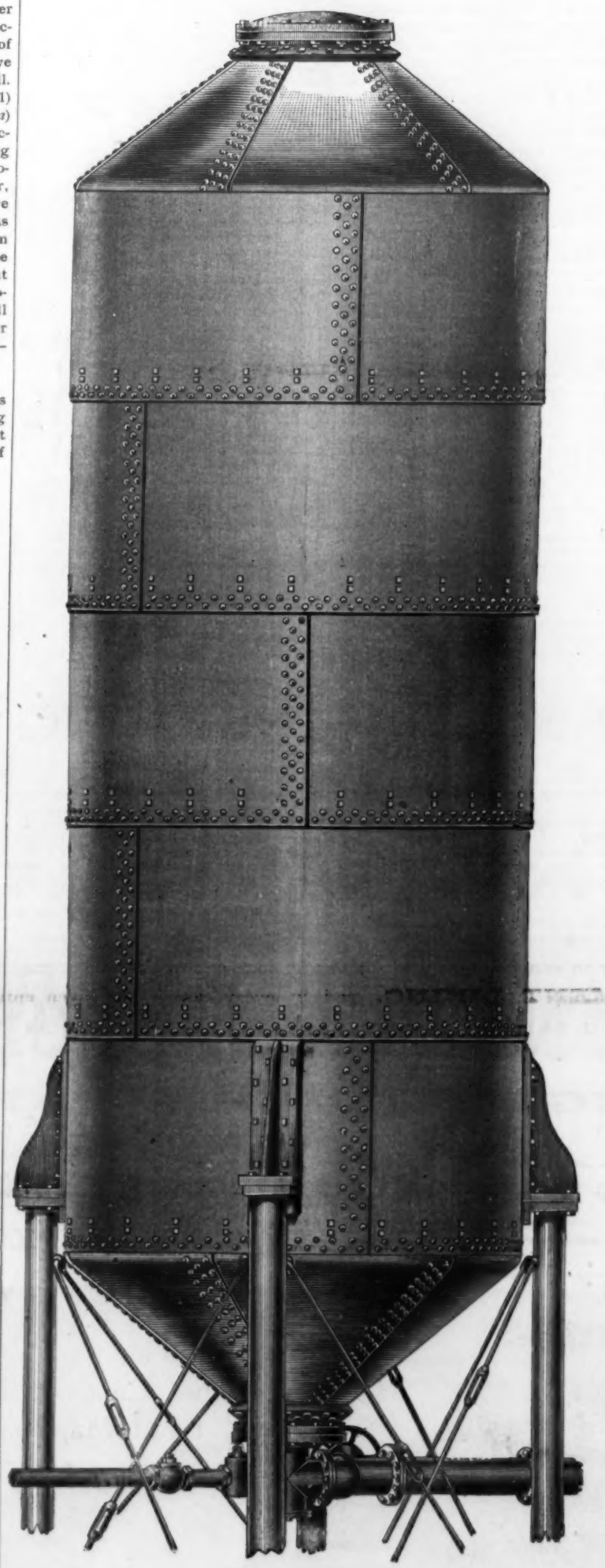

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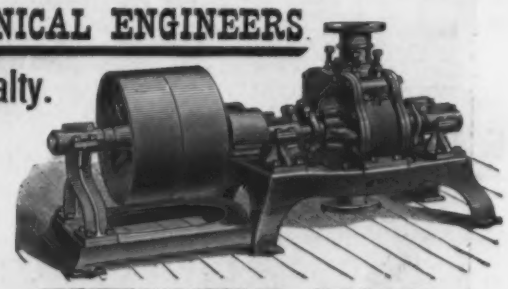

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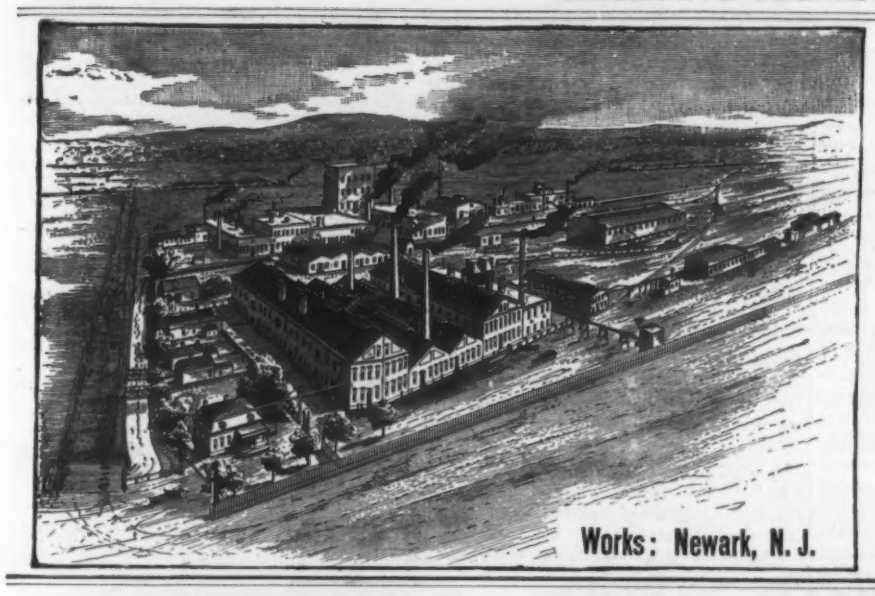
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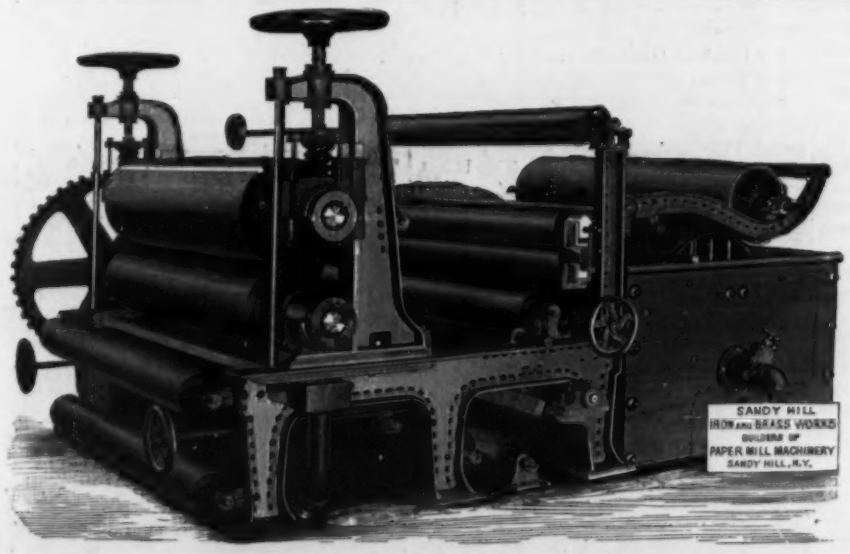

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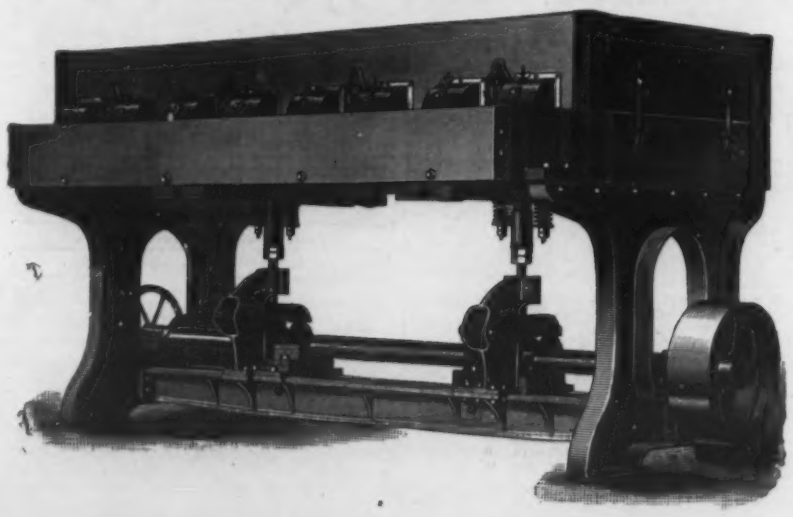

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Manufacture of Straw Cellulose.*

By James Beveridge.

(Concluded.)

DISCUSSION.

Mr. A. Smetham said he had been interested personally in the distinctions which Mr. Beveridge drew in regard to the different straws and their value to the paper maker, and that more particularly because in their use for feeding purposes various straws had distinct values. He noticed in the tables by Müller that the percentage of cellulose was found to vary to a very large extent, whereas with Mr. Beveridge's estimates the percentages for his practical purposes by the bisulphite tests for the cellulose were, if not identical, very nearly so, in the straws from the various sources. It had been puzzling him how to account for those differences. Doubtless in paper making a certain quantity of the actual cellulose would be destroyed, partly in bleaching, and it might be for those reasons that the differences existed. He was not aware what process Müller used for the estimation of the cellulose, but taking his figures, and assuming for the moment that Müller had used a process which he (Mr. Smetham) thought was common with nearly all agricultural chemists, viz., that of boiling with 2 per cent. solution of sulphuric acid, washing with water, then boiling with a 2 per cent. solution of caustic potash, washing again with water, then with a dilute cold solution of hydrochloric acid, and washing free from acid, then with alcohol and ether, and finally drying. It seemed difficult to believe that the quantity of cellulose, as stated by Mr. Beveridge, would really be above that in the table, the more especially as he noticed that the strength of the caustic soda used by the paper maker was something under one-third per cent. It was true that the digestion went on very much longer in paper making than in the laboratory (for half an hour) with the caustic; in practice, according to Mr. Beveridge's tables, it went on under pressure at a temperature of 307° for four hours, and possibly therefore there might be gradual loss. He imagined that the process in the laboratory would have been quite as drastic as the process of the paper maker, and it was certain that Müller's results, so far as oat straw was concerned, were in accordance with what was found when the straw was used for feeding purposes. The percentage of cellulose in straw depended very largely on the period of growth, and it was possible that the difference between Müller and Mr. Beveridge could be accounted for in that manner. Certain it was that the oat straw was more valuable for feeding purposes than wheat straw. He would be interested if Mr. Beveridge could throw some light upon that difference, and it would also be interesting to him if Mr. Beveridge would sketch in a rough way the process which he used on the laboratory scale for estimating the cellulose by the bisulphite test.

Mr. Bateson remarked that there was a process brought forward to add bicarbonate of soda and precipitate silica. Was that process likely to pay? The table exhibited showed that the percentage of cellulose varied a great deal, according to the quantity of caustic soda added. What was the reason of this variation? With regard to the recovery of potash in the residual liquors, would not the potash accumulate, and was there not a point where it would be taken away advantageously?

Mr. Beveridge said the fact was the laboratory method which he had used for estimating the cellulose was that formulated by Müller, and did not involve the use of caustic potash at all, but was substantially that indicated in the body of his paper—namely, treating the sample first with water, then, after drying, with alcohol and benzol, and finally with successive baths of ammonia and bromine water, an allowance being made for mineral matter in the cellulose residue. It was therefore distinct from the method mentioned by Mr. Smetham, which included digesting the sample in a 2 per cent. caustic potash solution, whose solvent action was much greater than that of ammonia. It was five years ago since he (Mr. Beveridge) tried Müller's method, and he confessed he was not so well acquainted now with the details as he ought to be. He threw over the process at that time because he found it did not give him a correct idea of the amount of cellulose available for paper making, and, as a manufacturer, preferred the bisulphite method instead. This consisted in digesting the straw for six or seven hours in a bisulphite of soda solution containing about 2.75 per cent. total SO_2, about 55 per cent. of which existed in the free state, the other 45 per cent. being combined as monosulphite. The temperature employed corresponded to a steam pressure of 60 or 70 pounds above atmosphere. The apparatus he used consisted of a strong tube of antimonial lead inserted in a small wrought iron boiler containing water. This boiler, which was heated by gas, acted as a steam jacket. The sample and bisulphite solution were placed within the antimonial lead tube. While managing a large sulphite wood pulp plant on the Thames, where all the pulp boilers were stationary, he had used another and more convenient and reliable method. This consisted in simply placing the sample of straw and the bisulphite solution in a cylindrical leaden dish, sealing it up with the blowpipe excepting a small pin-hole in the cover, and placing it inside one of the large wood pulp boilers. The sample was "digested" under the same conditions of time and temperature as the wood within the boilers. In this way he got excellent results. He had varied the percentage of SO_2 within certain limits, and had found that the yield of cellulose was not affected by a reasonable excess of SO_2 as bisulphite. The percentage of SO_2 must not, however, be too high, otherwise he thought hydrocellulose was formed. These results were uniformly lower than the percentages given by Müller, and if the latter were correct he could not understand why paper makers did not get a higher yield than 40 per cent. air dry pulp by the most careful manipulation in the factory.

He believed that some substance was included in Müller's percentages of cellulose, as given in the table which could not rank as cellulose. The fact that, in the instance quoted by Roth, in which a yield of 50 per cent. air dry pulp was obtained, 7 cwt. of bleaching powder were required to bleach 1 ton of this pulp, plainly showed there was some substance present which required inordinate oxidation. He thought on the whole Müller's result was too high. The percentage of cellulose given by Müller for the oat straw agreed more closely with his own, but that given for wheat and barley was too high according to his experience. Referring to the points raised by Mr. Bateson, the potash could not be allowed to accumulate in the liquors, unless the silica was periodically removed. The amount of this silica was so great that where the percentage of soda recovered was anything like 70 per cent. of the amount put into the pulp boilers, after the recovered ash was used twice or thrice it became practically worthless for further use for digesting. It was obvious therefore that the silica must be removed before the potash could be allowed to accumulate to any great extent. The separation of this silica as a practical manufacturing operation was indeed a very difficult process, but, if this could be adequately done, the only way, as far as he knew, in which the potash might be utilized was by the method mentioned in the paper, viz., by separating the carbonate of soda from the carbonate of potash by crystallization, and, after neutralizing the mother liquors with sulphuric acid, adding sulphate of alumina to get a potash alum.

*From *Journal of the Society of Chemical Industry.*

Comparative Value of Different Boilers.

The comparative value of different boilers has lately been a prominent theme at the meetings of different engineering associations, and much has been said in favor of those of water tube construction. In the advantages claimed for the latter stress is laid on the fact that when the circulation is efficient a rapid current flows through the tubes, producing a tolerably uniform temperature in all parts of the boiler, and there are no serious strains from unequal expansion, the small diameter of the tubes permitting the attainment of excessive strength over any desired ordinary steam pressure, even with thin heating surfaces.

As such boilers are also made in sections of moderate size they are easily transported, and can be conveyed through narrow openings of buildings which would not admit of a fire tube boiler, and they may be fixed in confined spaces. As is well understood the heating surface of such boilers is measured on the internal diameter of the tube—in a general way 1 square foot of heating surface being required for the evaporation of 2½ pounds of water per hour, and 49 square feet of heating surface for every 100 pounds of water evaporated per hour.—*Canada Lumberman.*

Clinkering depends upon two things, says an exchange: the temperature at which the coal is burned, and the composition of the ash. The fact that a coal does not clinker may be due to its impurity, the poor quality of the coal preventing it from making a fire hot enough to fuse the ash. On the other hand, a very pure coal may clinker, because it burns at a high temperature and melts its ash. A coal must have heat enough to melt the silicates it contains in order to make clinker. Generally the more bases there are in the ash the more fusible it is. Two coals, either of which burns without giving much trouble on account of clinkering, may clinker more if they are mixed, the reason being that the combination of the ashes of both is more fusible than is the ash of either separately.

Strength of a Boiler.

There are a few things which the engineer must bear in mind when figuring on the strength of a boiler: That the pressure acts in every direction; that each side of the boiler plate has its own load to support without any reference to what the other side is doing, and that the strength of the structure must be figured from its weakest part. Steam acting in every direction must press upon the top of the boiler as much as it does upon the sides of the boiler, and between these two points must exert at every point the same amount of pressure. If then we take a half-circumference of a boiler and estimate the strain that one side of the shell has to withstand, we will find that that portion of the plate that is exactly the top of the boiler will contribute the full pressure of the steam as a breaking strain.

That portion of the boiler where the strain is to be figured will have no pressure upon it that can be felt at that point as a bursting strain, and between these two points the pressure will have an effect to break the boiler, in proportion as the steam presses directly upward or to one side. It would not do, therefore, to say that the pressure of the steam upon each square inch of the upper half of the boiler is tending to rupture it, for a portion of this pressure is ineffective for this purpose, because it does not act at right angles to the spot where the strain is to come. It will be found that the strain put upon the boiler shell will be just the same as though the boiler was a square one, and was stayed in position.

If the engineer therefore will consider and figure the strain upon his boiler just as he would if the boiler was a square one he will reach satisfactory results. If it was square he would say that the sides supported a strain equal to the area of the top side times the steam pressure, and the top would be of a length equal to the diameter of the boiler. It is the same in a cylinder boiler. The sides of a boiler have to stand a strain equal to the diameter of the boiler times the steam pressure for each inch in width of sheet. If a boiler is 60 inches in diameter, and carries 80 pounds of steam, the sides of the boiler have to stand $60 \times 80 = 4,800$ pounds. To withstand this strain there are two sides, and each side sustains one half. One side of the boiler therefore sustains one-half the diameter times the steam pressure; in this case $30 \times 80 = 2,400$ pounds. This is the first thing to do then in figuring the strength of a boiler to find how much each side must support, and this will be one-half the diameter times the steam pressure.

To support this we have the strength of the plate, and the plate weakened by the line of rivets, so the strength of the line of rivets must be the point figured. A plate is always designated as having a certain number of pounds tensile strength. This means that if a piece of the plate 1 inch wide and 1 inch thick was tested it would be found to withstand a certain pull, usually about 60,000 pounds for steel and not more than 50,000 for iron. If the piece had been only a quarter of an inch thick it would have stood only one-quarter the strain, and if a piece from a boiler plate a quarter of an inch thick and 1 inch wide was tested and found to break at 15,000 pounds it would be said to have a tensile strength of 60,000 pounds, for that is what it would have held if it had been 1 inch thick.

Tensile strength, then, always means what a plate would have held if it had been one inch thick, and the real strength of the plate must be found by multiplying by its thickness. A single line of rivets has a strength equal to 56 per cent. of the solid plate, double rivets 70 per cent. and triple rivets 85 per cent. We think it advisable to figure 50 to 57 per cent. of the strength of the plate for single riveted; 20 per cent. is usually added for double riveted, and triple riveting is not common. The distance of the rivets apart also has considerable to do with the strength. Therefore the plate will be weakened by its rivets, &c., this percentage. The ¼ inch plate, with a strength of 15,000 pounds, would have but 56 per cent. this strength, or 8,400 pounds at the rivets, and when this strain was put upon it it would burst. But it is not advisable to strain a boiler to its utmost limit, so a factor of safety is allowed of 5, which would give but 1,680 pounds as the safe strain of this plate to bear. At 80 pounds pressure this would give a semi-diameter of $1,680 \div 80 = 21$ inches, or 42 inches diameter of the boiler. The following rules are therefore given:

1. To find strength of inch width of plate: Multiply the tensile strength of plate by the thickness of plate in inches.

2. To find bursting pressure of boiler: Multiply tensile strength of plate by thickness of shell, and this product by strength of riveted joint in per cent., and divide by one-half the diameter of the boiler.

3. To find the safe working pressure: Divide bursting pressure by the factor of safety. In new boilers this is usually 5.

4. To find stress on stay bolts: Find area of square the stay bolt sustains, less area of bolt itself. Multiply this area by pressure of steam.

5. To find number of braces required for a boiler: Find the area of segment of head, four inches from shell and four inches above tubes. Multiply this area by steam pressure, and divide by strain on each brace, allowing to each brace a strain of 6,000 pounds per sectional inch.

Braces and stay bolts should sustain not more than 6,000 pounds for each inch in section.

Size of rivets: For a quarter-inch plate, rivets should be five-eighths of an inch in diameter, with 2-inch pitch for single riveting and 3 inch pitch for double riveting, and both diameter and pitch increase one-sixteenth for each one-sixteenth increase in thickness of plate; for single riveting and for double riveting increase in diameter one-sixteenth, and in pitch one-eighth inch for each increase of one-sixteenth inch in thickness of plate.

The pitch of a rivet is the distance between centres of adjoining rivets.

From these rules we figure the following examples:

1. What is strength of inch width of three-eighth inch plate, tensile strength 60,000 pounds?

$60,000 \times \frac{3}{8} = 22,500$ pounds.

2. What is the bursting pressure of 60 inch boiler, three-eighth inch plate, tensile strength 60,000 pounds, double riveted?

$60,000 \times \frac{3}{8} = 22,500$
.70

30)15,750.00

Ans. 525 pounds.

3. Find working pressure of above.

5)525

Ans. 105 pounds.

Stay bolts and braces are required to sustain the pressure upon the plate in all directions half way between them and the adjoining stay bolts, but from this area must be deducted the sectional area of the bolt upon the space occupied, upon which of course no pressure can act.

4. What is strain on stay bolt 8 inches between bolts, bolt 1 inch in diameter, pressure 80 pounds?

Area between bolts, $8 \times 8 = 64$.
Less area bolt, .7854

63.2146
80

Ans. 5057.1680 pounds.

The head of a boiler is braced by the tubes partially by the hanging of the head at the shell. This will support within 4 inches of the shell and tubes. The area of the head that needs bracing is that segment 4 inches above tubes and 4 inches from shell.

5. How many braces required, 1 inch in diameter, area segment 420 square inches, steam pressure 80 pounds?

420
80

4,712.4)33,600

7.2, nearly, of 1 inch round braces.

For 1 inch square section, divide the 33,600 by 6,000; the result is 5.6.

To find area of segment of circle, multiply one-half of the length of segment by the height of the segment and to the product add 8 per cent. of the product. This is not absolute, says the Boston *Journal of Commerce*, but an approximation.

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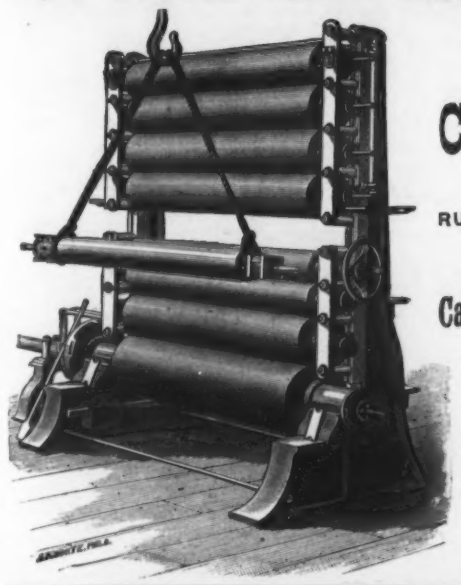

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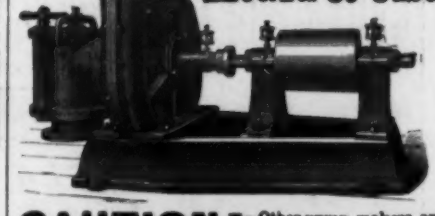

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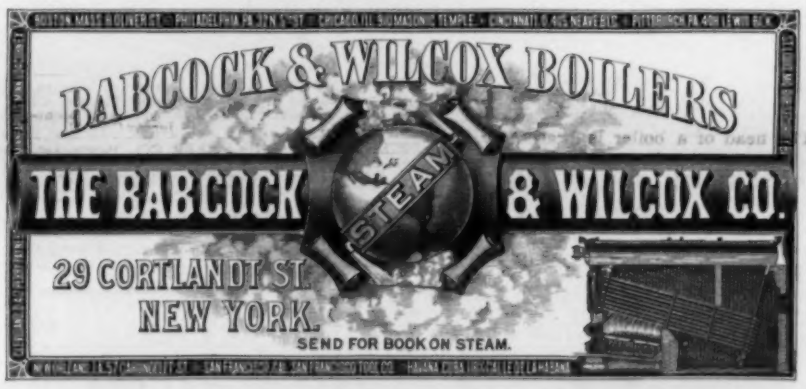

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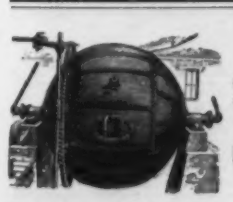

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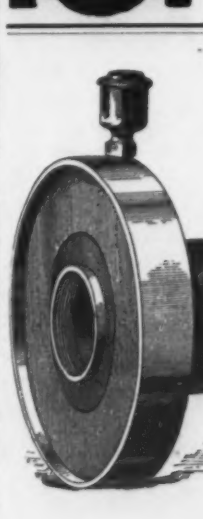

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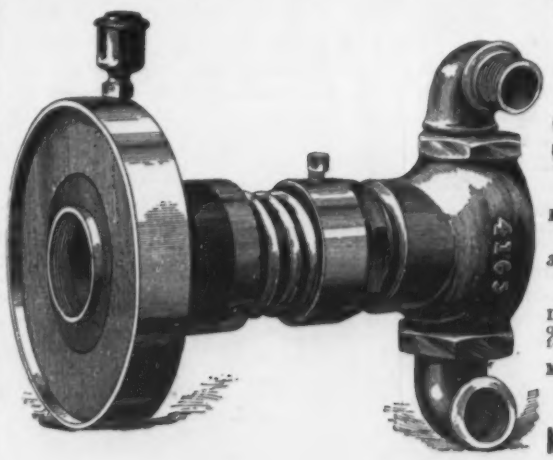

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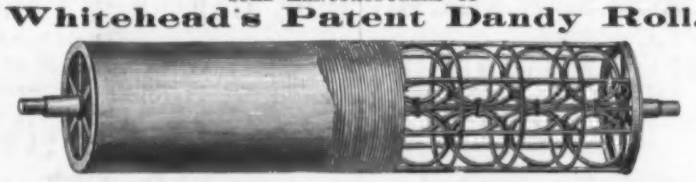

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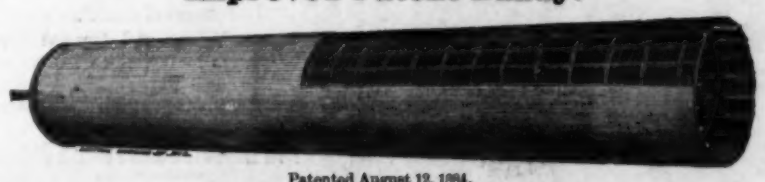

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